



MCWP 3-24

Assault Support



US Marine Corps

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FOREWORD

Marine Corps Warfighting Publication (MCWP) 3-24, *Assault Support*, provides a framework for the development and employment of assault support assets in peace, crisis or war. While this publication covers all aspects of assault support, it focuses on the employment of vertical lift support for Marine air-ground task force (MAGTF) operations. The doctrine applies across the full range of military operations—from support to civil authorities and/or foreign humanitarian assistance to general war.

Assault support doctrine is based on a common understanding of the nature of war and on our warfighting philosophy as described in Marine Corps Doctrinal Publication (MCDP) 1, *Warfighting*. This doctrine provides for fast, flexible, and decisive action in a complex environment characterized by friction, uncertainty, fluidity, and rapid change.

This publication is for commanders and their staffs as a guide to plan assault support missions. It forms the basis for specific tactics, techniques, and procedures (TTP) found in MCDPs, assault support aircraft Naval Air Training and Operating Procedures Standardization (NATOPS) manuals, and tactical manuals within the naval warfare publication (NWP) 3-22.5 series.

Reviewed and approved this date.

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CHAPTER 1

ROLE IN THE MARINE AIR-GROUND TASK FORCE

Marine aviation is renowned for its close relationship with the ground combat element (GCE). When in support of a MAGTF scheme of maneuver, Marine aviation has the ability to provide significant firepower and mobility. This helps the MAGTF commander to maneuver within the battlespace to engage and destroy the enemy.

The aviation combat element (ACE) provides combat power and operational capability to the MAGTF. Individual aircraft combined and task-organized into an ACE provides a highly capable, responsive, force multiplier to the MAGTF commander. The ACE's unique capabilities complement other MAGTF elements. The ACE is not a substitute for any MAGTF element. The ACE contributes to mission accomplishment by providing all or a portion of the six functions of Marine aviation to the MAGTF commander.

The functions of Marine aviation should not be confused with capabilities of USMC aircraft. The six functions of Marine aviation—antiair warfare (AAW), offensive air support (OAS), electronic warfare (EW), air reconnaissance, control of aircraft and missiles, and assault support—are broad descriptions of missions that may be performed by the ACE.

Capabilities are what the aircraft are able to do. A UH-1N can conduct assault support by providing combat assault support of personnel or control aircraft using organic radios. An AH-1W can conduct OAS by firing an AGM-114 Hellfire missile at an enemy armored vehicle, and it can provide aerial reconnaissance using the night targeting system. The ACE provides multiple mission capability to the MAGTF through air crew training and skillful use of its aircraft. See appendix A for more information on aircraft capabilities.

Assault support uses aircraft to provide tactical mobility and logistical support for the MAGTF. It may be used to enhance the rapid buildup of MAGTF combat power and to facilitate rapid ground force maneuver. Assault support's uses are normally tactical, logistical or administrative in nature. Assault support enhances the MAGTF commander's ability to—

- Concentrate strength against the enemy's selected weaknesses using speed and surprise.
- Focus combat power at the decisive place and time and exploit opportunities created during combat.
- Sustain combat power.

By conducting assault support operations, the commander can take full advantage of fleeting opportunities throughout the battlespace.

Speed and focus of effort are essential elements of maneuver, both of which the MAGTF commander can apply using assault support. Assault support provides the MAGTF commander with the capability to move assets over long distances quickly. The MAGTF can rapidly bring together assault support assets from multiple locations to mass forces in a single focus of effort. This ability to rapidly concentrate forces is a hallmark of naval expeditionary power projection.

Mobility and flexibility, gained by extensively using assault support aircraft in tactical operations, are an important part of Marine aviation doctrine. Helicopters enhance the mobility and sustainability of Marine forces during operations well removed from their rear areas for extended periods of time. Improved aircraft design has increased the combat radius and load capacity of assault support aircraft, providing more flexibility and fire support to the MAGTF.

Types of Assault Support Operations

Assault support involves the use of aircraft to provide tactical mobility and logistical support for the MAGTF, the movement of high-priority cargo and personnel within the immediate area of operations, inflight refueling, and the evacuation of personnel and cargo. Assault support operations require detailed, coordinated, and concurrent planning. Efficient execution of assault support operations requires thorough knowledge of mission, enemy, terrain and weather, troops and support available-time available (METT-T).

Combat Assault Support

Combat assault support provides mobility for MAGTF forces. It is used to rapidly deploy forces, bypass obstacles or redeploy forces to meet the enemy threat. The increase in mobility, speed, range, and freedom of action provides the MAGTF commander a variety of diverse options. Combat assault support allows the MAGTF commander to effect a rapid force buildup at a specific time and location of his choosing. In the near future, advanced aircraft designs (such as the MV-22) may further expand these advantages to the MAGTF commander.

Air Delivery

Air delivery operations transport equipment and supplies to forward operating bases (FOBs) or remote areas. Airdrops (parachute or free fall) deliver equipment and supplies. Airdrops are done primarily by fixed-wing transport aircraft. Airdrops are conducted when surface or helicopter transport cannot fulfill resupply requirements due to range, closed lines of communications, lack of adequate airfields, prohibitive ground tactical situation, high tonnage or the need to reduce response time. The supported commander selects the drop zone (DZ) using the following criteria:

- The DZ should be free of obstacles.
- Aircraft approach routes are not over enemy-controlled territory.
- The terrain should be flat.
- The DZ should be a rectangular area with prevailing wind along the zone's long axis.
- The terrain should have prominent features.

The best DZ is close to an area with ample cover and concealment. This allows materiel recovery, segregation, inventory, and preparation for distribution without exposing personnel to enemy observation or fire.

Aerial Refueling

Currently, Marine KC-130 aircraft serve as airborne tankers for rotary-wing and fixed-wing aircraft with the probe and drogue system. Aerial refueling allows Marine aircraft to conduct flight-ferrying operations, extend time on station, and extend mission range.

Air Evacuation

Air evacuation is the transportation of personnel and equipment from FOBs or remote areas. This includes flights from areas of operations (AOs) to secure rear areas, casualty evacuation (CASEVAC), and extraction of forces. Helicopters and fixed-wing transport aircraft perform air evacuations.

Tactical Recovery of Aircraft and Personnel

Tactical recovery of aircraft and personnel missions facilitate the recovery of personnel and equipment while avoiding additional loss. The tactical recovery of aircraft and personnel (TRAP) mission is an implied task associated with all MAGTF operations. Specially trained and briefed aircrews, with a task-organized force from the GCE, are assigned to perform TRAP missions. TRAP missions are conducted only when survivors and their locations are confirmed. TRAP missions stress—

- Detailed planning.
- Assigned and briefed aircrews.
- Confirmation of survivors and their locations.

By using the TRAP concept, the Marine Corps fulfills the Joint Chiefs of Staff (JCS) requirement for each Service to be able to perform combat search and rescue (SAR). Using TRAP techniques, Marine forces are able to perform self-supporting SAR operations and some external SAR support. SAR is a secondary task, and its execution should not detract from primary warfighting functions. Marine forces currently lack the organic capability to effectively conduct searches when the survivor's location is unknown, particularly in a medium or high threat environment.

Air Logistical Support

Fixed-wing aircraft perform air logistical support by providing assault support of Marine ground forces in much the same manner as helicopters. Air logistical support delivers troops, equipment, and supplies to areas beyond helicopter range and lift capability or when surface transportation is slow or unavailable. The Marine Corps' limited quantities of transport aircraft restricts their use in amphibious assaults, operations ashore or contingency plans. To minimize the effects of this limitation, MAGTF commanders can employ operational support airlift assets to conduct air logistical support to benign AOs thereby freeing critical assault support aircraft to perform their primary function. If large-scale, long-range air operations exceed MAGTF capabilities, additional support should be requested from the joint force commander (JFC).

Levels of War

The seven types of assault support operations offer the commander a wide range of options that he can use to develop operation plans. Assault support employment strategy depends on the MAGTF's mission and the enemy's capabilities. The

MAGTF commander considers assault support employment methods during the planning phase and throughout the operation's execution. Assault support operations vary in intensity throughout the operation and may be employed in pursuit of tactical, operational or strategic objectives.

MCDP 1, *Warfighting*, states that "in war, tactics focus on the application of combat power to defeat an enemy force in combat at a particular time and place." This explains assault support's most common use in the levels of war. During assault support operations at the tactical level, aviation may be employed with ground or naval forces to—

- Provide mobility to the MAGTF.
- Exploit opportunities presented by the enemy or created by friendly forces.
- Rapidly concentrate combat power at the most advantageous time and place.
- Help maintain the tempo of operations and the momentum of the attack.

The operational level of war is the link between the strategic and tactical levels. The goal of a force's actions at the operational level of war is to gain strategic results from tactical efforts. The MAGTF may be the first force to be committed to a theater of operations. The MAGTF commander's actions at the tactical level will have strategic implications as they will shape future operations in that theater. The commander must decide when, where, and how to engage the enemy at a particular place and time to achieve a strategic result. Assault support operations allow the commander to maintain an advantage in speed and surprise over the enemy. In this way the commander can drive the fight in the desired direction. The commander can shape events using assault support to create favorable conditions for future combat operations. This could mean air logistical support to sustain tactical operations over an extended period of time or combat assault support to attack the enemy's vulnerable flank or rear area. All tactical actions must seek to gain strategic results.

The strategic level of war is where national strategy—the art and science of using political, economic, military, and informational power—is focused to attain national policy objectives. Assault support operations fit within the framework of strong military capabilities that can enable the nation to meet its objectives. However, operations based on assault support capabilities such as noncombatant evacuation operations (NEOs) are directly linked to the national policy of safeguarding the lives of American and allied citizens. Therefore, assault support operations can have direct strategic implications.

Command Relationships

The relationship between the MAGTF commander and the ACE commander typifies Marine Corps command relationships. The MAGTF commander provides the ACE commander with the mission and the commander's intent. The ACE commander determines the most effective method of employment of ACE assets to accomplish the mission and meet the commander's aim.

A helicopterborne assault is one of the most common assault support operations. Refer to MCWP 3-11.4, *Helicopterborne Operations*, for more specific information on helicopterborne assaults. A look at the helicopterborne force will reveal the importance of command relationships.

Helicopterborne assaults require task-organizing both ground and aviation assets to accomplish the MAGTF scheme of maneuver. The MAGTF commander task-organizes a helicopterborne force based on mission requirements and establishes the command relationships within the force to execute the operation. The MAGTF commander will designate a mission commander. The mission commander may come from the GCE, ACE or combat service support element (CSSE). The ACE, GCE, and CSSE commanders plan the mission together. The

ACE commander is responsible for providing mobility and fire support for the assault. The GCE commander is responsible for planning the ground tactical mission to include maneuver and fire support planning. The CSSE commander plans how to support both the ground and aviation plans.

Unity of command is the most important and fundamental consideration during these operations. In a combined arms effort, unity of command promotes coordinated action toward a common goal required for mission accomplishment.

The air mission commander (AMC) is responsible for accomplishing the air mission. The AMC determines what assets are required, such as the number of transport, escort, and support aircraft. He determines the route of flight for the mission. It is important that he considers primary and alternate routes. Changing routes can affect the fire support plan. The authority to change the route may be delegated to the AMC by the mission commander.

The helicopterborne unit commander (HUC) is responsible for accomplishing the ground tactical plan and choosing the required assets. The buildup of combat power in the objective area is critical early on and must be considered carefully.

Landing zone (LZ) selection is critical in the early phases. The HUC and AMC must agree on primary and alternate LZs. They must be large enough to land the helicopterborne force in tactical integrity, be clear of obstacles, and most importantly, be covered by fire support assets. The authority to change LZs may be delegated to the HUC or AMC by the mission commander. Also identified in the early planning phases is who is supporting whom. By delegating authority and identifying supported/supporting relationships during mission planning, conflict resolution most likely will be resolved before executing the mission.

Capabilities

Assault support is an integral part of the total MAGTF effort because of its many capabilities. The MAGTF performs assault support missions during day, night, and adverse weather conditions. Reliance on assault support increases when movement of personnel and equipment must be done quickly over long distances or over prohibitive terrain. Assault support's principal advantage is its capability to quickly move MAGTF forces and equipment throughout the battlespace. Assault support offers the MAGTF commander a wide range of capabilities from improving friendly morale to bringing devastating combat power to bear from any direction to decisive points on the battlefield. Other capabilities of assault support aircraft are varied. The following areas are not all inclusive.

Observation

Aircrews performing assault support missions can observe large areas and report enemy activity and movement in areas hidden from ground observation.

Flexibility

Diverting assault support aircraft from one mission to another allows the MAGTF commander to exploit fleeting battlefield opportunities. The ability to integrate supporting arms enhances the MAGTF's combined arms effects. Assault support operations allow the commander to attack from any direction, bypass obstacles or enemy strengths, and provide responsive reserves or reinforce committed units. The commander can resupply units in otherwise inaccessible locations.

Employment of aerial refueling or rapid ground refueling (RGR) provides the means to recover aircraft, equipment, and personnel from hostile areas. Access to fuel increases the combat radius or time on station of aviation assets. These options available to the commander have a positive effect on friendly morale and destroy enemy morale. The

MAGTF commander should exploit the psychological effect that aviation has on both friendly and enemy forces.

Limitations

Assault support limitations must be considered during planning. Specific assault support limitations follow.

Limited Visibility

While darkness or limited visibility can be advantageous, it can also present limitations to assault support. Problems can occur when aircraft encounter difficulties during rendezvous, approaches, and landings. Troop and cargo loading and unloading are also slower and more difficult. Planners should anticipate delays and increase mission time requirements.

Rotary-wing assault support aircraft currently have no radar capability. Night vision systems are available but cannot duplicate daylight conditions. Night or limited visibility operations require close attention to planning specific phases of each mission. Problems can be offset by using smaller formations and larger intervals between formations to reduce LZ congestion. Route and LZ selection are important for navigation and safe conduct of takeoffs and landings.

Using night vision devices (NVDs) allows aircrews to conduct night operations more safely. However, NVD use does not guarantee tactical success. Effective NVD use requires a full understanding of each device's capabilities and limitations as they apply to each tactical situation.

Weather

Weather at the LZ is more limiting than weather en route or at home base. Temperature extremes and wind velocity can seriously affect helicopter performance. Low ceilings and poor visibility decrease assault support effectiveness, influence escort tactics, and hamper fire support coordination.

Landing Zone Identification

LZ identification is one of the most difficult aspects of assault support missions. Improvements to navigation systems with global positioning system (GPS) have helped considerably, but LZs must still be identified visually before landing. Proper map study, aerial imagery, aircraft sensors or systems (forward-looking infrared [FLIR], GPS), and accurate LZ descriptions will decrease erroneous identification of LZs. Planners should use initial terminal guidance teams or LZ marking whenever possible.

Reduced Radius of Action

Fuel on board determines radius of action or time on station. Increasing an aircraft's payload beyond a certain point reduces the amount of fuel an aircraft can carry and reduces its time on station. Refueling at FOBs reduces this limitation but requires additional planning, resources, and coordination.

Communications

Coordination of assault support missions with the controlling agencies and fire support assets requires reliable radio communications. Real-time information is crucial and cannot be overemphasized. Thorough communications planning can provide secure, reliable radio transmissions by employing airborne radio relay capabilities and enhance alternate

means of communications such as message drop or face-to-face liaison.

Enemy Defenses

Enemy defenses affect the conduct of assault support missions. Development of sophisticated air defense systems deters air support. Local air superiority will greatly increase the ability to successfully conduct assault support missions. Suppression of enemy air defenses (SEAD) may be required both before and during assault support operations. Enemy surface-to-air weapons, fighters, and small arms fire must be considered when evaluating risk and determining routes.

Required Escort Support

The purpose of an escort is to destroy, neutralize or suppress a threat before it is able to influence the assault support mission. Assault support assets do not possess self-defense capabilities to counter a formidable threat. The use of additional assets to ensure the safe arrival of MAGTF forces into the objective area may be required. Most commonly, the assault support mission will incorporate armed escorts to accompany the assault support aircraft en route or clear an objective area prior to arrival of assault support assets.

CHAPTER 2

PLANNING

Joint and combined operations require thorough planning to ensure success. Planning operations that will optimize the MAGTF's strengths and exploit the enemy's vulnerabilities is the key to success. Simple, well-thought-out plans ensure the successful completion of operations. Assault support operations are conducted with other supporting arms. OAS artillery and naval surface fire support (NSFS) integration require extensive planning and precise execution for effective assault support employment. See MCWP 3-16, *Fire Support Coordination*, and MCWP 3-16.1, *Artillery Operations*, for more information on indirect fires in support of assault support operations.

MCDP 5, *Planning*, states "Proper planning puts us in the position to act when necessary or advantageous and not merely to react to developments." Central to an assault support operation's success is a flexible but simple plan.

Flexibility in execution comes directly from a well-understood, integrated, and coherent plan. A basic plan that is simple and flexible can survive changes. Assault support missions, by their nature, have the potential to become very complex. Simplicity must be maintained, but planners should not sacrifice detailed, well-coordinated planning.

Marine Corps Planning Process

The Marine Corps Planning Process (MCP) has evolved from the 16-step deliberate planning process and the rapid planning process. Aviation

planning should follow a similar process or cycle. The only variable is time available to conduct the planning. The following is a six-step, generic planning progression that can be entered at any echelon.

Mission Analysis

The purpose of mission analysis is to review and analyze orders, guidance, and other information provided by higher headquarters and to produce a unit mission statement. Mission analysis drives the MCP.

Course of Action Development

During course of action (COA) development, planners use the mission statement, commander's intent, and commander's planning guidance to develop several COAs. Each proposed COA must be determined suitable, acceptable, and complete with respect to the current and anticipated situation, mission, and the commander's intent. Approved COAs are further developed in greater detail.

Course of Action Wargame

Each friendly COA is examined and evaluated against possible enemy COAs. Environmental factors are also considered at this point in the process. Planners look at strengths, weaknesses, shortfalls, and risks presented by each COA. Potential branches and sequels are identified at this time. Understanding and improving each COA is best done at this step in the process.

Course of Action Comparison and Decision

In COA comparison and decision, the commander evaluates all friendly COAs against established criteria and then against each other. The commander then selects the COA that he feels most likely will accomplish the mission.

Orders Development

With the commander's intent, guidance, and COA decision, the staff develops orders to direct the actions of the unit. Orders serve as the principal means by which the commander communicates his decision, intent, and guidance.

Transition

This is the point where an orderly handover of a plan is made to those who will be executing the plan. The unit executing the plan will have the situational awareness and rationale for making decisions required for a coherent shift from plan to action.

MAGTF Air Tasking Cycle

The MAGTF air tasking cycle has evolved into six phases to mirror the joint air tasking cycle. It is designed to occur over a 36- to 72-hour period. The cycle follows the path of command and aviation guidance (which includes apportionment), target/air support mission development, allocation and allotment, tasking, force execution, and combat assessment.

Phase I: Command and Aviation Guidance

The MAGTF commander will provide guidance through mission orders by clearly conveying his intent and by designating the MAGTF main effort. The commander's guidance and objectives identify target priorities, procedures, fire

support coordination measures, and rules of engagement (ROE). Apportionment is the determination of the total level of effort that should be dedicated to the aviation tasks required to accomplish the MAGTF's mission. The ACE commander submits a recommendation for the apportionment of the ACE to the MAGTF commander for approval.

Phase II: Target/Air Support Mission Development

The specific objectives described by the commander are used to focus specific target and air support mission development. The end product of this phase of the air tasking order (ATO) cycle is a prioritized list of targets and a prioritized list of air support missions.

Phase III: Allocation and Allotment

Allocation is the translation of the level of effort into total number of sorties (by aircraft type) available for each task. Allocation includes the submission of preplanned air support requests by the ACE, GCE, and CSSE commanders. Preplanned requests include joint tactical airstrike requests, assault support requests (ASRs), and joint tactical airlift requests.

Allotment of sorties is then decided to support execution of the MAGTF mission. For example, 30 CH-53E sorties are available for a day during the operation. The GCE commander needs to conduct a helicopterborne assault, and the CSSE commander needs to set up a refueling point to support the GCE scheme of maneuver. Each subordinate element is given a percentage of the 30 sorties to fulfill its requirements.

Phase IV: Tasking

Tasking is the process of translating allocation and allotment decisions into an ATO. The ACE commander passes on the tasks to the units involved.

The MAGTF ATO assigns missions and mission support responsibilities to specific squadrons.

Phase V: Force Execution

On receipt of the ATO, an aircraft squadron commander assigns individual aircrews specific missions. Each mission commander then plans the mission with support from the ACE staff. Task-organized groups of aircraft then execute the assigned missions.

Phase VI: Combat Assessment

Combat assessment is the evaluation of the results of missions and their effectiveness in accomplishing the command objectives. Combat assessment should include battle damage assessment and reattack recommendations. The ACE staff assessment is forwarded to the MAGTF commander for determination of overall mission success and to recommend changes regarding future operations.

Although combat assessment marks the end of the ATO cycle, it provides input for the next air tasking cycle and subsequent command aviation guidance, target development, allocation, allotment, tasking, force execution, and combat assessment. In essence, there can be three simultaneous ATOs: the ATO in execution, the ATO in production, and the ATO in planning.

Effective Employment

Several conditions are required for effective assault support employment. Assault support effectiveness increases when—

- Air superiority has been attained and maintained.
- Enemy air defenses have been suppressed, neutralized or destroyed.
- Missions are planned so as to use terrain and environmental conditions to gain maximum advantage.
- Missions are planned with flexibility as part of the command and control (C2) plan.

Intelligence Preparation of the Battlespace

Due to the vulnerability of assault support assets, intelligence preparation of the battlespace (IPB) is extremely important in assault support operations. IPB is the analysis of the environment and the threat in a specific geographic area. It is designed to support the commander and his staff in making estimates of the situation and developing COAs. IPB helps the commander to selectively apply and maximize combat power at critical points in time and space. IPB determines the threat's likely COA and describes the environment in which the MAGTF is operating and how the environment may affect the MAGTF's plans. More specific information on applying IPB to assault support operations can be found in Army Field Manual (FM) 34-130, *Intelligence Preparation of the Battlefield*.

Threat Levels

Threat levels determine assault support feasibility. There are three general threat levels: low, medium, and high. There is no clear division between these threat levels. Air defense systems that present a low or medium threat level for one aircraft type may present a high threat level for another aircraft type. A medium threat level during daylight hours may be a low threat level at night. Threat level determination allows an aircrew to tailor tactics to a particular situation and environment. Threat level planning is based on type, quantity, and quality of individual weapons and weapons systems. Control and communications systems used to integrate weapon systems assist threat level planning. The skill level possessed by the system operator is equally important to this process.

A low threat level allows assault support operations to proceed without prohibitive interference. Aircrews are free to select tactics that ensure effective use of aircraft capabilities. A low threat environment includes small arms and medium antiaircraft weapons. Limited optical acquisition antiaircraft artillery (AAA) with no

integrated fire control systems also characterize a low threat environment.

A medium threat level allows acceptable exposure time of friendly aircraft to enemy air defenses. This threat level can restrict assault support flexibility in the immediate target or objective area. A medium threat environment includes limited radar or electro-optic acquisition capability not supported by fully integrated fire control systems. A fully integrated fire control system that is degraded because of terrain, weather or other factors indicates a medium threat environment.

A high threat level exists when the enemy has an air defense system that includes integrated fire control systems and EW capabilities. The ability to conduct assault support operations is severely affected in a high threat environment. A high threat environment includes effective communications and control systems, tactical or strategic surface-to-air missiles (SAMs), early warning radars, EW, integrated AAA fire control systems, and interceptor aircraft.

The decision by the MAGTF commander to employ assault support assets must be carefully weighed against the risk involved. Assault support aircraft are a finite resource, subject to multiple requirements from subordinate element commanders with tactical and logistical needs.

An estimate of the situation based on METT-T is a useful tool in determining those planning considerations that will affect assault support mission planning. The analysis of METT-T is crucial also to determining the commander's estimate. The MAGTF commander's analysis using the mission and the GCE commander's estimate of the tactical situation determine in large part the ACE commander's strategy to support the mission. The ACE commander's estimate of supportability summarizes aspects that influence any proposed COA. Planners must analyze the impact of aviation factors upon the particular situations and then determine how assault support assets can be best employed in

support of the MAGTF commander's concept of operations and the ground scheme of maneuver.

More specific considerations for employment of assault support during the planning process follow. In addition, more detailed information on mission planning can be found in MCWP 5-11.1, *MAGTF Aviation Planning*.

Availability

The quantity, type, operational status, and capability of aircraft assigned determine assault support availability. The proximity of FOBs to the AO also affects availability.

Aircraft Capability

Although specific aircraft are best suited to perform certain missions, each squadron's tasks require similar capabilities across the board. Versatile, multiple mission capable aircraft are essential in MAGTF operations and are the foundation of Marine Corps aviation doctrine. The CH-53E (primarily an assault helicopter) can perform airborne control and coordination for assault support operations, while a UH-1N (primarily a utility helicopter) can provide combat assault support of troops, supplies, and equipment. The versatility of assault support aircraft gives the MAGTF commander many options when considering mission execution.

Aircrew Currency/Proficiency

Aircrew training and experience levels are important considerations that mission planners often overlook. Aircrews must be properly trained for the mission to be performed. Marine Corps Order (MCO) P3500.16C, *Aviation Training and Readiness Manual, Volume 3, Tactical Helicopter* (Volume 2 for the KC-130) provides a syllabus that will ensure aircrews are current in missions that they may be tasked to fly. Aircrew proficiency is determined by many factors such as number of flight hours a crew member has, number of times similar missions have been flown by the crew

members, and length of time elapsed since the last time that similar mission has been flown.

Air Defense

Air defense considerations affect the MAGTF commander's COA. The air defense threat and the type of assault support requested determine the degree that the threat must be reduced. If the MAGTF commander determines that assault support employment is essential to accomplish the mission, the commander assigns high target priority to enemy air defense weapons. This ensures continuous employment of integrated supporting arms to destroy or neutralize the air defense threat.

Mission Classification

The ACE executes assault support missions as either preplanned or immediate missions. The ACE executes both types of support in response to specific requests. To request assault support, units use the ASR or the joint tactical airlift request. The type of request determines the type of support. See appendix B for more information on the ASR.

Preplanned Missions

Preplanned missions are performed according to specific tasking and time availability. Planning should be done far enough in advance to permit detailed mission coordination. Preplanned missions allow the ACE commander to manage air assets more effectively. Preplanned missions are either scheduled or on call. Mission requests are completed at the requesting unit and forwarded up the chain of command to the senior fire support coordination center (FSCC). The requests are then passed to the ACE where they are included in the appropriate ATO.

Scheduled Missions

Scheduled missions are executed at a specific time. Aircrews are assigned a mission execution time. Scheduled missions provide effective coordination and economical aircraft use and require approval from each intermediate command level.

On-Call Missions

On-call mission aircraft are configured for a particular mission and placed in an appropriate ground or air alert readiness condition. The supported unit specifies the required support period.

Typically, detailed mission planning and aircrew briefing of all mission-essential information is not possible. Scheduled air support requires that the requesting commander identify his requirements and set a specific mission time well in advance. This is often impossible on a fluid, dynamic battlefield. On-call missions allow the requesting commander to identify specific requirements without setting a specific time.

Immediate Missions

Immediate missions meet requests that arise during battle. They are not normally identified far enough in advance to permit detailed mission coordination and planning. Response time or the action cycle begins with the request and ends with execution. Response time is a prime consideration. An example of an immediate mission may be diverting aircraft from a preplanned mission to fill an immediate assault support request. While the diverted aircraft may not be the proper type or configuration, swift execution can exploit an unexpected enemy weakness or maintain the attack momentum.

The Marine air command and control system (MACCS) handles immediate mission requests. See MCWP 3-25, *Control of Aircraft and Missiles*, and MCWP 3-25.3, *Marine Air Command and*

Control System Handbook, for more discussion on the MACCS. Appropriate C2 agencies monitor and approve the request. Mission details are coordinated and issued while aircraft are assigned and moved toward the area. Immediate air support requires extensive use of electronic communications for effective coordination. This communication may be difficult in a high-intensity jamming environment.

Support Requirements

During the planning process, specified and implied tasks will indicate the type of support the mission will require. Range, enemy defenses, and size of the helicopterborne force will dictate the support requirements needed to ensure mission accomplishment. Logistics, communications, and supporting arms integration are all areas where support will be required.

These supporting elements allow assault support aircrews to concentrate on mission accomplishment. Supporting elements degrade the enemy's air defense capability and reduce the number of aircraft exposed to enemy weapons, while strengthening the commander's plan with logistical and communications support.

Escort Operations

Escort aircraft provide protection for assault support missions. Attack helicopters and fixed-wing fighter and attack aircraft can escort assault forces. Escorts are responsible to the AMC for the following:

- Protection from rotary-wing threat aircraft.
- Protection from fixed-wing threat aircraft.
- Protection from enemy ground fire.
- Route reconnaissance.
- LZ clearing by fire if necessary.
- Downed aircraft support.
- Observation and adjustment of fires.

Employing escort aircraft depends on many factors. Planners should review recent intelligence and determine the current air defense and ground threat. If enemy tactics show that assault support aircraft are the main target, deceptive measures can be used to simulate a helicopterborne force and draw the enemy aircraft into contact. Escort aircraft should be positioned where they can provide the greatest protection to the helicopterborne force.

Assault Force Self-Defense Capability

There may be a reduced need for attached escort if the assault force has a self-defense capability. Aircraft performance, onboard weapons, aircrew training, and low altitude tactics can provide limited self-defense capability. Careful consideration must be given to the vulnerability of assault support aircraft in an unescorted mission.

Enemy Surveillance Capability

The enemy's ability to detect aircraft will affect the size, routing, and escort tactics of the assault support mission. Smaller, more maneuverable formations may be used if the enemy has sophisticated surveillance equipment. The enemy's surveillance capability will determine the type of escort used. For example, a detached escort might be more useful than an attached escort because attached escort aircraft increase the formation's size, therefore increasing the chance of detection.

Enemy Air Defenses

Known enemy air defense assets may be dealt with in different ways. Navigation around the SAM sites, preemptive strikes or SEAD during the assault support mission are options available to the commander. All will affect mission planning and escort tactics.

Ordnance Loads

Escort ordnance loads depend on the threat and available aircraft. Whenever feasible, escort

ordnance loads need to be tailored to the mission and the enemy.

Attached Escort Technique

Attached escort techniques provide visual weapons coverage and responsive fires for threat engagement during medium to high threat conditions. Attached escort aircraft maintain close contact with the assault force. This close contact can reduce the attached escort's speed and freedom of action. Attached escort aircrews may find themselves in a defensive or reactive posture at the start of an engagement. If the escorts are in a defensive posture, the entire assault support package may be in this posture also. Consequently, the assault support package and attached escort may be limited in maneuverability and tactics selection.

Detached Escort Technique

Detached escort techniques provide reconnaissance and selected coverage at predetermined sites en route in low to medium threat levels. Detached escort aircraft provide protection by clearing a path for the assault force. Detached escort aircraft try to prevent the enemy from closing with the assault force. Detached escort allows escort aircrews to retain the initiative. Detached escort also allows the escort platforms more options in tactics selection and engagement parameters due to greater flexibility in employing all onboard weapons systems. However, the assault force may suffer serious losses if attacked by enemy forces that evade the detached escort. This is especially true if assault support aircraft have a limited self-defense capability.

Combined Escort Technique

Attached and detached escort techniques combined provides a defense in-depth, horizontally and vertically, and around the assault support aircraft. Although providing the best all-around protection for the assault support flight in all threat levels, combined escort is costly because it requires more assets than the other escort techniques.

Electronic Warfare

EW aircraft protect assault support aircraft through electronic attack, electronic support, and electronic protection. Electronic attack can be used to deceive the enemy by sending misleading information about assault forces' speed, altitude, direction, and size. EW planners can recommend to the mission commander EW tactics that will provide the greatest assault force protection. The assault force mission commander and the EW planner should consider the following:

- Initial jammer activation requires careful planning to prevent early detection of the assault force.
- Preemptive or reactive jammer assignments are superior to threat-specific, reactive jammer assignments.
- The length of time EW support is necessary to protect assault support aircraft.
- EW aircraft are vulnerable to enemy fighters, since they maintain a constant position and perform little maneuvering. Fighter coverage improves EW aircraft survivability.
- EW aircraft integration with the assault force and other MAGTF EW assets is critical.
- The effectiveness of enemy electronic countermeasures against our attackers.
- Unanticipated threats and responses should be identified.
- Electronic deception capabilities of both friendly and enemy forces must be known.

Suppression of Enemy Air Defenses

SEAD reduces assault support aircraft attrition by degrading enemy air defense system effectiveness. SEAD uses supporting arms (i.e., artillery, NSFS, and aircraft) and other available means to deter, suppress or destroy the enemy's air defense capability. SEAD should be integrated not only with assault support aircraft but with other supporting aircraft. Detection of SEAD aircraft alone may change the enemy's normal operating procedures. High-speed antiradiation missiles (HARMs) or

antiradiation missiles (ARMs) can suppress or destroy radar sites. Because SEAD effects are short-lived, these missions should be timed to give maximum protection to the assault force. Mission planners should—

- Determine SEAD requirements.
- Determine assets available for SEAD.
- Study the assault force's route of flight.
- Determine which enemy systems pose major threats.
- Determine number of SEAD aircraft required.
- Coordinate HARM/ARM timing to provide maximum assault force protection.
- Determine placement of SEAD aircraft in relation to the assault force and the threat.
- Determine the need for fighter aircraft to protect SEAD elements during ingress and egress.
- Set and understand sector responsibilities and priorities if there are more threats than available assets can cover.
- Review HARM/ARM delivery envelopes and launch procedures.
- Determine who will initiate SEAD fires.
- Keep the mission commander informed of SEAD capabilities.

Deception Operations

Deception operations are those measures designed to mislead the enemy by manipulation, distortion or falsification of evidence. The goal is to induce the enemy to react in a manner against his interests. Deception operations may be aimed at the individual who is most influential on enemy operations in the MAGTF zone. Deception operations are planned to elicit a specific action from the enemy, such as committing forces elsewhere or maintaining strength in an area the MAGTF intends to avoid.

Operations Security

Operations security (OPSEC) assists in denying the enemy's ability to use collection assets to locate friendly forces and determine their intentions. The less information the enemy has concerning assault support operations, the easier it is to conduct a successful operation. Planners must carefully analyze enemy capabilities to determine if OPSEC measures are adequate for the planned mission. OPSEC for assault support missions may be accidentally compromised by using—

- The same ingress and egress routes.
- The same frequencies, code words, and authentication procedures.
- Flight profiles that place assault support aircraft in enemy search or early warning radar coverage areas.
- Radios, radars, radar altimeters or other emissions.
- Radio transmissions on uncovered nets.

Base of Operations

Operational deployment of assault forces involves the relocation of forces to desired AOs. Critical deployment factors include the selected transportation and the availability of operational and support facilities. The decision to deploy forces is based on the assets involved, assigned tasks, supportability of the deployed force, and national defense needs.

Because of the ACE's self-deployment capability, its units may be the first MAGTF forces to arrive in the AO. During the deployment phase, the MAGTF commander may designate the ACE as the main effort. This is especially true when ACE assets are the primary source of transportation to the theater for the force. Because of the Marine Corps expeditionary

nature, operations can be conducted from austere sites. Operations from these sites require careful planning to be effective.

Forward Operating Base

The MAGTF's capability to project power is based on its ability to move to and operate from any area. The ACE contributes to this capability by staying close to the AO to increase responsiveness during all operational phases. FOBs, whether they are expeditionary airfields, enhanced local airfields or forward arming and refueling points (FARPs) are the means by which Marine aviation provide this rapid response capability.

The future of MAGTF operations is moving towards the concepts of operational maneuver from the sea (OMFTS) and ship-to-objective maneuver (STOM). These concepts will keep most of the support assets on ship, reducing the requirement for building up large supply areas ashore. This will affect response time depending on the location of the objective area. Assault support planners will have to factor in transit time of aircraft to the objective and allow for multiple refueling options. STOM will aid in the logistical support of aviation units and increase force protection of both aviation and combat service support units since they will be ship-based and less accessible to the enemy.

CHAPTER 3

OPERATIONS

Marine aviation operates as an integral part of the MAGTF. The MAGTF conducts operations using the principles of maneuver warfare to obtain maximum force capability and versatility.

Assault support, either fixed-wing or rotary-wing aircraft, can influence offensive and defensive operations by providing tactical mobility and logistical support at the decisive time and place. Helicopterborne assaults offer speed, surprise, and flexibility so the commander can react rapidly to a changing tactical situation. The helicopter's capabilities along with fixed-wing lift and range capabilities allow the MAGTF to strike over extended distances and terrain barriers. This allows the MAGTF to attack when and where the enemy is most vulnerable. Assault support aircraft are primarily movers of personnel, equipment, and supplies. Because of the helicopter's vertical lift capability, its use in assault support is dominant. It is a primary provider of combat assault support, air evacuation, and TRAP. Fixed-wing aircraft provide significant contributions to the assault support function through air logistical support, aerial delivery, aerial refueling, and battlefield illumination.

Offensive

Offensive operations are the means to decisive victory; however, victory is rarely the outcome of any one battle, offensive operation or offensive maneuver. The commander's use of tools determines an operation's victory or defeat. A commander who gains and maintains a superior tempo, sustains the momentum of the offensive, and employs his force with the principles of war and the concept of maneuver warfare in mind is more likely to achieve victory. Aviation functionality, because it is inherently offensive, is useful

in offensive or defensive operations in exactly the same way.

The ACE commander must be concerned with maintaining tempo, sustaining operational momentum, and effectively applying the six functions of aviation in the execution of the offensive. Economy of force is a major factor in the ACE's choice of options in executing offensive operations.

The helicopterborne assault is the most basic type of offensive operation conducted by assault support forces. It is the insertion or extraction of combat forces. Insertion is the movement of an assault force into an objective area, and extraction is movement of an assault force out of the objective area. When augmented with KC-130s, the helicopterborne force can conduct a variety of offensive operations over long distances.

Attack

An attack is a fast, violent, and coordinated maneuver supported by fire conducted to defeat, destroy, neutralize or capture the enemy. A helicopterborne attack capitalizes on speed and flexibility to gain maximum surprise. Assault transport helicopters support an attack by inserting the helicopterborne force on or near the objective. Fixed-wing aerial refueling and transport add significant continuity to the attack capability. A helicopterborne force can conduct a hasty or deliberate attack based on the degree of planning, preparation, and coordination involved prior to execution.

The hasty attack trades preparation time for speed to exploit an opportunity. A hasty attack takes audacity and relies on speed and surprise to achieve the commander's objectives before the enemy can effectively respond. There is little

time to plan; orders must be brief. Assault support planners rely heavily on training and standing operating procedures to make a successful hasty attack.

The helicopterborne force, as part of a larger operation, may conduct a deliberate attack. A deliberate attack is a preplanned offensive action characterized by maneuver and firepower to close with and destroy the enemy. Assault support can play a key role in the rapid massing of forces to conduct a deliberate attack. Mission planners must have enough time to develop a detailed plan. Planners collect detailed information about the terrain to select appropriate pickup zones (PZs), LZs, DZs, and flight routes. Unlike hasty attacks on more familiar terrain and with recently acquired intelligence, deliberate attacks deep in the enemy's rear areas often do not allow aircrews to perform a visual reconnaissance of the flight routes or objective area. Planners must rely on detailed map studies, photographs, and other imagery to formulate their plans.

Exploitation

Exploitation is an offensive operation undertaken to follow up success in the attack. During the exploitation phase, assault support aircraft may be used to maintain constant pressure on the enemy by providing mobility and logistical support to the exploitation force, allowing it to seize key terrain or engage high-payoff targets such as command posts or support units deep in the enemy's rear area. Two chief characteristics of exploitation are speed and violence.

Pursuit

A pursuit is an operation to catch or cut off a hostile force attempting to escape, in order to destroy it. Pursuit forces trap and destroy the retreating enemy with coordinated maneuver and fire. Assault support aircraft can be used to bypass resistance and to deliver forces to seize objectives that are chokepoints for the retreating enemy. A helicopterborne force can cut off the enemy and

delay its retreat so that coordinated fires from combined arms can destroy it.

One of the best examples of assault support aircraft use during offensive operations is Operation Dewey Canyon, conducted during the Vietnam war in the upper A Shau Valley and southern Da Krong Valley from 22 January through 14 March 1969. This was a multi-battalion operation involving the 9th Marine Regiment and two battalions of the 1st South Vietnamese Army Division.

On D-day, 22 January 1969, initial LZs were prepared by fixed-wing air strikes. The first landings occurred at 0800. In the rapid buildup that followed, CH-46s, under a protective umbrella of gunships and observation aircraft, brought 1,544 Marines and 46 tons of cargo into two LZs. By the evening of 24 January, a battery of 105 millimeter (mm) howitzers were in place.

Over the next two months, the Marines conducted a series of leap-frogging maneuvers with helicopters to establish multiple fire support bases in the A Shau Valley. During Dewey Canyon, Marine helicopters flew 14,893 sorties for 5,050 flight hours, moved 3,515 tons of cargo, and lifted 21,841 troops.

During the March 1969 withdrawal from the A Shau, more than 350 tons of cargo and 1,400 Marines were transported out of two fire bases without a casualty. Perhaps the most notable item of the operation was that only one helicopter was lost in spite of adverse weather and a determined enemy.

Defensive

Defensive operations are often less decisive than offensive operations. The defense is a force's coordinated effort to defeat an attacker and prevent the attacker from achieving their objectives. An effective defense is never passive. Commanders may assume the defense in one area in order

to mass forces in another area. Commanders conduct the defense only until they can resume the offensive. The ACE's role in defensive operations requires that the inherently offensive functional capabilities of Marine aviation focus on operations and maneuvers that benefit from an aircraft's speed, mobility, and flexibility. The ACE is no less dynamic in defensive operations than in the offense and continuously seeks to create and exploit opportunities to defeat the enemy.

During defensive operations, the commander organizes the battlespace into three areas in which the defending force performs specific functions. See figure 3-1. These areas can be further divided into sectors. A defensive sector is an area assigned to a subordinate commander. In the commander's sector, the subordinate commander is provided maximum latitude to accomplish his defensive operations. The three sectors are the security area, the main battle area (MBA), and the rear area. A helicopterborne force can defend against an infantry-heavy threat by using the helicopter's mobility to achieve a maneuver advantage over the enemy. This allows the helicopterborne force to operate in the security area, MBA or rear area. Fixed-wing assault support functions in the defense are typically aerial refueling, air evacuation, and air logistical support.

Security Area

Actions in the security area are designed to deceive the enemy on the location of the MBA, cause the enemy to deploy early into attack formations, and make the enemy vulnerable to the effects of combined arms. Assault support aircraft can move engineers and equipment into and out of the security area in support of the MAGTF's barrier plan. They can provide mobility for reconnaissance teams or fire support teams placed in front of the MBA. Battlefield illumination employed in the security area can expose an enemy entering the security area.

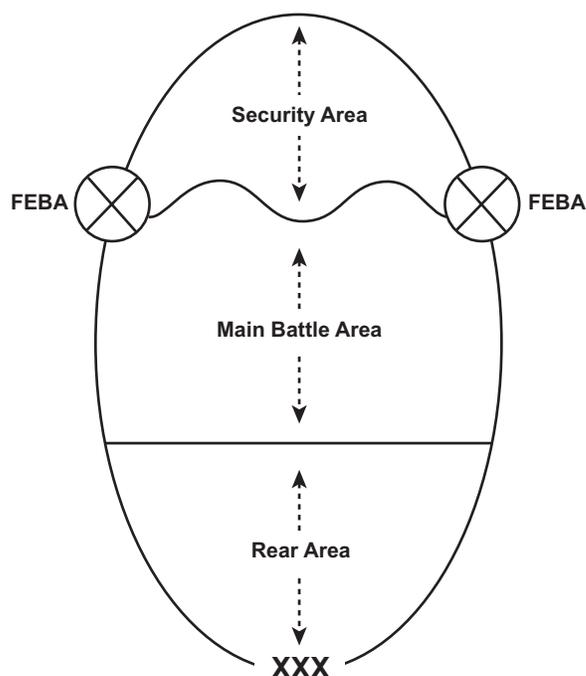


Figure 3-1. Organization of the Battlespace.

Main Battle Area

The MBA is where the MAGTF fights the decisive battle. It extends rearward from the forward edge of the battle area (FEBA) to the sectors given to the unit's subordinate elements. The helicopterborne force's superior mobility allows the commander to defend in greater scope. It fights a series of battles in depth, attacking from the front, flanks, and rear while using minimal forces to maintain surveillance over the rest of the assigned sector. Battle positions throughout the MBA should be selected and prepared along likely avenues of approach. Primary and alternate LZs and PZs should be selected for each battle position, in order to facilitate the rapid vertical movement of forces and supplies wherever and whenever they are required.

Rear Area

The rear area extends forward from a commander's rear boundary to the rear MBA of responsibility of the commander's subordinate units. The rear area is provided primarily for the performance of combat service support functions. Assault support aircraft are normally employed to transport supplies and sustain operations of the MAGTF. Other functions of assault support aircraft in the rear area are transport of quick reaction or reserve forces, sensor insert, and reconnaissance of potential infiltration points.

Marine Expeditionary Unit (Special Operations Capable)

The post-Cold War world is a world in crisis. The Marine Corps provides the Marine expeditionary unit (special operations capable) (MEU(SOC)) to react properly to these events. This MAGTF is continuously forward deployed to react quickly to crises. The MEU(SOC) possesses specific maritime capabilities based on its expeditionary and amphibious nature. These capabilities are a refinement of the traditional capabilities of Marine forces afloat. These capabilities make them far more useful as forward-deployed forces capable of dealing with a wider range of contingency and crisis response situations.

The mission of the MEU(SOC) is to provide the geographic combatant commanders the capability to conduct conventional amphibious and selected maritime special operations at night, during adverse weather, from over the horizon, under emission control (EMCON) conditions, from the sea, and by surface or air. Due to their unique training and focus, MEU(SOC) forces are capable of commencing mission execution within 6 hours of notification. Assault support plays an important role in these missions and provides direct action support or intelligence gathering for the MAGTF. The ACE, especially in MEU(SOC) operations, brings a significant amount of fire-

power to the baseline MAGTF. Inherently light and expeditionary in nature, the MEU(SOC) gains from the ACE the mobility and responsive fire support necessary in small-scale, rapidly executed evolutions. Within most MEU(SOC) missions, assault support plays a significant role in deployment and sustainment of the force.

The MEU(SOC) ACE is built around a Marine medium helicopter squadron (HMM), reinforced with utility, attack, heavy-lift assault support helicopters, and fixed-wing attack aircraft. It often includes additional fixed-wing assault supporting transport aircraft (shore based). The MEU(SOC) ACE is normally task-organized to provide assault support, OAS, limited anti-air warfare, control of aircraft and missiles, EW, and aerial reconnaissance.

The inherent capabilities of a forward-deployed MEU(SOC) are divided into four broad categories: amphibious operations, direct action operations, military operations other than war (MOOTW), and supporting operations. Marine Corps Order (MCO) 3120.9B, *Policy for Marine Expeditionary Unit (Special Operations Capable)* ([MEU(SOC)]), for more information.

Amphibious Operations

Amphibious operations include amphibious assaults, raids, demonstrations, and withdrawals. They can be conducted on short notice, at night, under EMCON conditions via helicopter and/or surface means over extended ranges. Amphibious operations are discussed in greater detail in chapter 4.

Limited Scale Raids

Limited scale raids (LSRs) are the capability to conduct short-duration strikes and small-scale offensive action. TRAP is an example of the many operations that make up this category. Precision raids, ambushes, and direct assault using close-quarter battle skills are all tactics used during LSR.

TRAP is a LSR that satisfies the JCS requirement that each branch of the armed forces maintain its own SAR capability. SAR is defined as a specialized task performed by rescue forces to effect the recovery of isolated personnel from a hostile environment during wartime or contingency operations. Recognizing the unique environments of maritime and amphibious operations, the Marine Corps fulfills this requirement with TRAP.

TRAP is part of the assault support planning checklist and is usually planned as part of a helicopterborne assault. Aircraft and crew are usually earmarked for TRAP as either dedicated or as on call to be flown by an aircraft conducting the combat assault support.

A TRAP is a LSR that relies on specific and flexible force packaging designed to defeat the threat, protect the force, and successfully recover isolated personnel without any loss to the package.

Military Operations Other Than War

Included in MOOTW are NEOs, foreign humanitarian assistance (FHA), and disaster relief. These operations focus on deterring war, resolving conflict, promoting peace, and supporting civil authorities in response to domestic crises. The ACE can provide air logistical support by moving supplies and personnel throughout the operations area.

MOOTW include many situations that challenge a commander. Assault support operations provide the commander with many options in meeting these challenges.

Noncombatant Evacuation Operations

NEOs are characterized by uncertainty. Noncombatants may include United States (US) citizens, US military personnel, citizens of countries friendly to the US or third country nationals (TCNs). The Department of State plans for evacuations of US citizens and TCN. The Department of State also determines when that plan will be executed.

NEOs require the commander to consider things not usually associated with offensive or amphibious operations. A NEO is similar to a raid. There is a rapid insertion followed by a planned withdrawal. The use of minimal forces to provide security for the evacuation forces and evacuees is important. Diplomatic considerations significantly influence the execution of a NEO. Situations may change as the NEO is conducted, depending on the political situation within the country and the threat. A NEO may take place in a permissive, uncertain or hostile environment.

Permissive environments are characterized by little or no resistance from the host nation or its armed forces. ACE participation is minimal in a permissive environment, and noncombatants may depart the country via civil airline traffic. Military assistance, in the form of security forces, may be the primary focus of the NEO.

The degree of danger to the noncombatants is the concern in an uncertain environment. The host nation's military forces may be supportive of, neutral to or opposed to the NEO. Assault support operations may be the only ACE participation due to political sensitivities. Innovative planning is necessary to ensure that fire support assets can support the NEO should the situation deteriorate.

A hostile environment can be characterized by civil unrest or full scale war. ACE participation can be expected to be at a maximum to insert combat forces, conduct convoy escort, and provide fire support.

Typically, MEU(SOC) units have conducted NEOs. The example of Operation Frequent Wind illustrates that NEOs may require a larger force to accomplish the mission.

Foreign Humanitarian Assistance Operations

Assault support is especially important in FHA operations. A force larger than a MEU(SOC) may be involved in FHA operations. Usually, a joint task force (JTF) will be tasked with the execution

of the relief effort. In a disaster, transportation infrastructures (roads, bridges or railways) may be damaged or destroyed. This will hinder evacuating and assisting the affected population.

The MAGTF uses assault support assets to move homeless or injured evacuees to safe areas and to deliver food, medicine, and other vital supplies. The following factors should be considered when planning a disaster relief operation:

- Language problems.
- Coordination with local authorities.
- Special medical requirements of evacuees.
- Environmental conditions.

Supporting Operations

Supporting operations may include tactical deception operations, JTF enabling force operations, and port and airfield seizures. All of these operations are in support of larger operations.

CHAPTER 4

COMMAND AND CONTROL IN AMPHIBIOUS OPERATIONS

An amphibious operation is a military operation launched from the sea by an amphibious force embarked in ships and craft with the primary purpose of introducing the landing force ashore to accomplish the assigned mission. Amphibious operations may include assaults, raids, demonstrations, and withdrawals. Refer to Joint Publication (JP) 3-02, *Joint Doctrine for Amphibious Operations*, for more information.

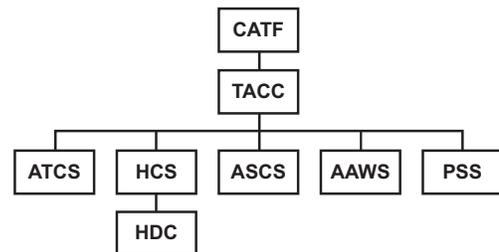
Assault support provides the landing force with the ability to rapidly focus and project decisive combat power ashore, and provides the MAGTF the speed, mobility, and flexibility necessary to accomplish the mission.

Assault support transport helicopters used in the ship-to-shore movement are subordinate landing force elements. The ACE executes the ship-to-shore movement according to the landing plan. The plan includes arrangements for shifting control of aviation operations to the commander, landing force (CLF) when the situation ashore permits.

Navy Tactical Air Control System

During the ship-to-shore movement, the commander, amphibious task force (CATF) coordinates and controls air operations through the Navy tactical air control center (TACC). Within the Navy TACC, the helicopter coordination section (HCS) coordinates helicopter operations. See figure 4-1.

The HCS decentralizes control of the helicopter ship-to-shore movement to the helicopter direction center (HDC). The HDC is aboard ships capable of handling helicopter operations. The HDC coordinates all assault support helicopter



LEGEND:
AAWS = Anti-air Warfare Section
ASCs = Air Support Control Section
ATCS = Air Traffic Control Section
HCS = Helicopter Coordination Section
HDC = Helicopter Direction Center
PSS = Preplanned Support Section

Figure 4-1. Navy Tactical Air Control System.

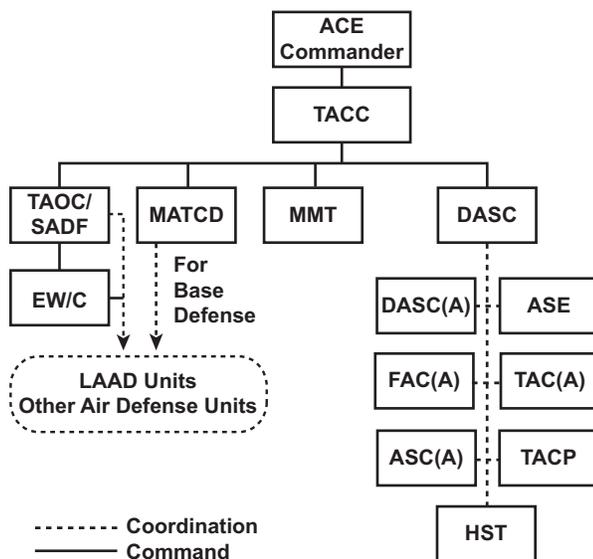
operations through the TACC. The HDC maintains continuous radar surveillance of aircraft operating in its assigned control area.

The plan for ship-to-shore movement is very detailed and jointly developed. It requires precise coordination and timing. MCWP 3-31.5, *Ship-to-Shore Movement*, covers this information in greater detail.

As soon as practical, the CLF establishes air control facilities ashore. This extends the amphibious force's aviation control capabilities, increases surveillance, and accelerates response. Initially, air control agencies ashore operate in a standby status and monitor all air control circuits. The CATF and CLF decide when to transfer control from agencies afloat to agencies ashore. The transfer may be sequential as functions of the MACCS become operational. Control agencies afloat continue to monitor communications circuits and are capable of resuming control, if required.

Marine Air Command and Control System

The Navy TACC controls all aviation assets, while afloat, in support of CLF. Once control is passed from CATF to CLF, the Marine tactical air command center (TACC) and its other subordinate agencies manage MAGTF aviation assets. The Marine TACC is the senior MACCS agency and provides centralized command and direction of subordinate activities. See figure 4-2. The Navy TACC then becomes a tactical air direction center (TADC) and assumes a monitoring status. Other aviation control agencies follow.



LEGEND:

ASC(A) = assault support coordination (airborne)
 ASE = air support element
 DASC = direct air support center
 DASC(A) = direct air support center (airborne)
 EW/C = early warning/control
 FAC(A) = forward air controller (airborne)
 HST = helicopter support team
 MATCD = Marine air traffic control detachment
 TACP = tactical air control party
 TAOC = tactical air operations center/sector air defense facility

Figure 4-2. Marine Air Command and Control System.

Tactical Air Direction Center

During the buildup of landing force combat power ashore, the CLF establishes a Marine TADC to act as a coordinating agency between the other MACCS agencies and the Navy TACC afloat. The TADC is identical in organization, capabilities, and facilities to the Marine TACC. The TADC remains subordinate to the Navy TACC until control of aviation has been passed ashore. The Navy TACC afloat then becomes a TADC subordinate to the Marine TACC.

Tactical Air Operations Center

The tactical air operations center (TAOC) is under the operational control of the Marine TACC. The sector air defense facility (SADF) is an extension of the TAOC. The TAOC is the primary AAW agency of the MACCS. It detects, identifies, and controls the intercept of hostile aircraft and missiles and provides airspace management and operational assistance. The TAOC can perform limited TACC functions.

Direct Air Support Center

The direct air support center (DASC) is the air control agency of the MACCS primarily responsible for the direction and procedural control of air operations directly supporting the MAGTF's GCE. It processes and coordinates requests for immediate air support and coordinates air missions requiring integration with ground forces and other supporting arms. The DASC is usually the first principal MACCS agency ashore. It functions in a decentralized mode of operation, but is directly supervised by the TACC.

The DASC is established by the Marine air support squadron (MASS) and processes immediate requests for air support, coordinates aircraft employment with other supporting arms, manages terminal control assets such as forward air controller (airborne) (FAC[A]) and assault support coordinator (airborne) (ASC[A]) supporting ground forces, and provides procedural control of assigned

aircraft, unmanned aerial vehicles (UAVs), and itinerant aircraft transiting through its assigned area. The DASC can employ a DASC (airborne) (DASC[A]) aboard a KC-130 and provide extended line of sight communications with low flying aircraft. The DASC will normally be collocated or electronically linked with the senior fire support coordination agency ashore.

In a Marine expeditionary force (MEF) operation with multiple maneuver elements (divisions) within the GCE, the DASC may be located with the MAGTF force fires coordination center (FFCC). This location will centralize the management of close air support (CAS) and assault support aircraft between the GCE maneuver element, and meet the commander's intent for maneuver and fire support.

The DASC will usually deploy air support elements (ASEs) to each major maneuver element FSCC, to provide it with the necessary links to the MACCS, in order to request and coordinate direct air support (DAS). The ASE size and composition will vary and can be expanded or reduced as the current situation requires (consistent with the assets available). The DASC only has the capability to provide "procedural control" for aircraft operating in its area. In amphibious operations, the DASC will normally land in the same scheduled or on-call wave as the senior fire support coordination agency phased ashore.

Several employment options are available for the DASC, including an airborne configuration in a KC-130. MASS assets are tailored to provide support based on the mission. A MEF could require a task organization that uses the assets of more than one MASS. At the MEU level, a MASS detachment is task-organized as an ASE, and its capability is reduced due to its size. The size and capability of the MEF DASC depend on the number of units that request air support and the number of aircraft that execute air support missions.

The DASC maintains communications connectivity with the other MACCS agencies, the FSCC, FFCC,

aircraft under its control, UAV squadron(s), and joint and other Service air support organizations. The DASC also requires connectivity with forward-based air assets to request launch in support of ground forces. See MCWP 3-25.5, *Direct Air Support Center Handbook*, for more information. The DASC operates through the following air control organizations.

Tactical Air Control Party

A tactical air control party (TACP) is a subordinate operational component of a tactical air control system designed to provide air liaison to land forces and for the control of aircraft. (JP 1-02) It is located within the GCE and provides ground commanders with the means to access DAS. In the Marine Corps, TACPs are organic to infantry divisions, regiments, battalions, and other combat arms units. TACPs establish and maintain facilities for liaison and communications between parent units and airspace control agencies, inform and advise the ground unit commander on the employment of supporting aircraft, and request and control air support. The TACP is a MACCS agency, but administratively it is not part of the Marine air control group.

Tactical Air Coordinator (Airborne)

A tactical air coordinator is an officer who coordinates, from an aircraft, the actions of other aircraft engaged in air support of ground or sea forces. (JP 1-02) Within the MACCS, the tactical air coordinator (airborne) (TAC[A]) is a naval aviator or naval flight officer and the senior air coordinator having air authority over aircraft operating in the assigned area. The primary mission of the TAC(A) is to act as an airborne extension of the DASC, TACC or FSCC, and to contribute to coordination among the TACPs, FAC(As), and the fire direction of artillery and naval gunfire.

Forward Air Controller (Airborne)

A FAC(A) is a specifically trained and qualified aviation officer who exercises control from the air of aircraft engaged in close air support of

ground troops. The FAC(A) is normally an airborne extension of the tactical air control party. (JP 1-02) Within the Marine Corps, the FAC(A) is a naval aviator or flight officer who is specifically trained, qualified, and designated to perform air reconnaissance and surveillance, conduct terminal control of aircraft engaged in OAS operations, control artillery and naval surface fire support missions, act as a radio relay, and control LZ preparations.

Assault Support Coordinator (Airborne)

An ASC(A) is an aviator who coordinates, from an aircraft, the movement of aviation assets during assault support operations. (MCRP 5-12C) The ASC(A) is an experienced aviator with extensive knowledge of the MACCS who acts as an airborne extension of the DASC. The ASC(A)

assists in providing situational awareness to the assault force, relays requests to the DASC, exercises launch authority for immediate and on-call missions, coordinates with the TAC(A), and provides routing recommendations to the air mission commander.

Helicopter Support Team

A helicopter support team is a task organization formed and equipped for employment in an LZ to facilitate the landing and movement of helicopterborne troops, equipment and supplies, and to evacuate selected casualties and enemy prisoners of war. (JP 1-02) Within the Marine Corps, helicopter support teams (HSTs) are accessed from the force service support group, specifically, the landing support company of the support battalion.

APPENDIX A

AIRCRAFT CAPABILITIES GUIDE

This ready reference of MAGTF aircraft should only be used for initial operational planning. Aircraft performance is affected by many variables such as temperature, atmospheric pressure, humidity, wind, aircraft configuration, and mission requirements. Specific performance parameters are calculated for every mission. Detailed mission planning requires close liaison with the ACE and use of appropriate operations and tactical manuals.

CH-46E

| Dimensions | |
|----------------|---|
| Height | 16 ft, 8 in |
| Weight | 16,500 lbs (empty) 24,300 lbs (maximum gross weight) |
| Rotor diameter | 51 ft |
| Length | 84 ft, 4 in |

| Airspeed | |
|-------------------|-------------------------------------|
| Maximum endurance | 70 knots indicated air speed (KIAS) |
| Maximum range | 110 to 130 KIAS |
| Maximum airspeed | 145 KIAS |

| Fuel Capacity | |
|---------------|-------|
| Pounds | 4,488 |
| Gallons | 660 |

| Endurance | |
|-----------|----------------------------------|
| Payloads | 4,300 lbs 12 passengers (PAX) |
| Endurance | 2 + 55 hours |

| Weapons Systems | |
|-----------------|-----------------------|
| Guns | 2 X 50 caliber XM 218 |

| Other Systems | |
|----------------|---|
| GPS navigation | Miniature Airborne GPS Receiver (MAGR) System |

| Communications Equipment | |
|---|---|
| Very high frequency (VHF)/ultrahigh frequency (UHF) | 12 X AN/ARC-210 w/KY-58 encryption device (CNCS configured aircraft only) |

| Aircraft Survivability Equipment | |
|----------------------------------|--------------------------------------|
| RWR | AN/APR-39(V)1 radar warning receiver |
| IRCM | AN/ALQ-157 infrared jammer |
| Expendables | AN/ALE-39 countermeasures dispenser |
| Missile warning | AN/AAR-47 missile warning system |

CH-53

CH-53D

| Dimensions | |
|----------------------|--------------|
| Height | 24 ft, 11 in |
| Empty weight | 27,000 lbs |
| Rotor diameter | 72 ft, 3 in |
| Length | 88 ft, 6 in |
| Maximum gross weight | 42,000 lbs |

| Airspeed | |
|-------------------|----------|
| Maximum endurance | 70 KIAS |
| Maximum airspeed | 130 KIAS |

| Fuel Capacity | |
|---------------|--------|
| Pounds | 13,178 |
| Gallons | 1,938 |

| Endurance | |
|-----------|------------------------------|
| Payload | 37 PAX 8,000 lbs internal |
| Typical | 3 + 00 hours |
| Best case | 5 + 30 hours |

| Weapons Systems | |
|-----------------|-----------------------|
| Guns | 2 X 50 caliber XM 218 |

| Communications Equipment | |
|--------------------------|---|
| High frequency (HF) | 1 X AN/ARC-94 or AN/ARC-174 |
| UHF/VHF | 2 X AN/ARC-182 w/KY-58 encryption device or 2 X AN/ARC-210 w/KY-58 encryption device |

| Aircraft Survivability Equipment | |
|----------------------------------|--------------------------------------|
| RWR | AN/APR-39(V)1 radar warning receiver |
| IRCM | AN/ALQ-157 |
| Missile warning | AN/AAR-47 missile warning system |

CH-53E

| Dimensions | |
|----------------------|-------------|
| Height | 24 ft, 4 in |
| Empty weight | 36,000 lbs |
| Rotor diameter | 79 ft |
| Length | 100 ft |
| Maximum gross weight | 73,500 lbs |

| Airspeed | |
|------------------------|----------|
| Normal cruise airspeed | 135 KIAS |
| Maximum airspeed | 150 KIAS |

CH-53E (Continued)

| Fuel Capacity | |
|----------------------|--------|
| Pounds | 15,000 |
| Gallons | 2,277 |

| Endurance | |
|------------------|-------------------------------------|
| Payload | 37 to 55 PAX 20,000 lbs internal |
| Typical | 4 + 00 hours |
| Best case | Indefinite with aerial refueling |

| Weapons Systems | |
|------------------------|--|
| Same as CH-53D | |

| Other Systems | |
|----------------------|------------|
| FLIR | AN/AAQ-16B |

| Communications Equipment | |
|---------------------------------|--|
| Same as CH-53D | |

| Aircraft Survivability Equipment | |
|---|----------------|
| RWR | Same as CH-53D |
| IRCM | None |
| Missile warning | Same as CH-53D |

UH-1N

| Dimensions | |
|----------------|--|
| Height | 13 ft, 1 in |
| Empty weight | 100 lbs (empty); 105,000 lbs (maximum gross weight) |
| Rotor diameter | 48 ft |
| Length | 57 ft, 4 in |
| Fuselage width | 9 ft, 4.5 in |

| Airspeed | |
|-------------------|---------------|
| Maximum endurance | 55 to 60 KIAS |
| Maximum airspeed | 130 KIAS |

| Fuel Capacity | |
|---------------|---|
| Pounds | 1,329 internal; 1,020 additional w/auxiliary fuel cells (2 maximum) |
| Gallons | 195; 150 additional w/auxiliary fuel cells (2 maximum) |

| Endurance | |
|------------|---|
| Best Case | 1 + 30 (internal fuel only; 1,300 lbs gear/ordnance/PAX) 2 + 20 (1/2 auxiliary fuel cell; 900 lbs gear/ordnance/PAX) 3 + 10 (full auxiliary fuel cell; 400 lbs gear/ordnance/PAX) |
| Worst case | 1 + 15 (internal fuel only; 1,300 lbs gear/ordnance/PAX) 2 + 00 (1/2 auxiliary fuel cell; 900 lbs gear/ordnance/PAX) 2 + 45 (full auxiliary fuel cell) |

| Weapons Systems | |
|-----------------|--|
| Guns | M240D |
| Rockets | 2.75 in folding-fin aerial rockets (FFARs) |

| Other Systems | |
|----------------|---|
| GPS navigation | Doppler GPS Navigation System (control display navigation unit configured aircraft only) |
| FLIR | AN/AAQ-22 Navigation FLIR with laser range finder and designator on 22D Miscellaneous ULQ-19 satellite communications (SATCOM) (nondemand assigned multiple access) |

| Communications Equipment | |
|--------------------------|---|
| VHF/UHF | 3 X AN/ARC-210 w/KY-58 encryption device (SATCOM available on one radio only) |

| Aircraft Survivability Equipment | |
|----------------------------------|-------------------------------------|
| RWR | APR-39(V) 2 |
| Infrared countermeasures (IRCM) | AN/ALQ-144 |
| Expendables | AN/ALE-39 countermeasures dispenser |
| Missile warning | AN/AAR-47 missile warning system |
| Laser warning | AN/AVR-2 |

AH-1W

| Dimensions | |
|----------------|---|
| Height | 13 ft, 9 in |
| Weight | 10,500 lbs (empty) 14,750 lbs (maximum gross weight) |
| Rotor diameter | 48 ft |
| Length | 58 ft |
| Fuselage width | 3 ft, 7 in |

| Airspeed | |
|-------------------|--------------------------------------|
| Maximum endurance | 72 KIAS |
| Maximum speed | 190 KIAS 170 KIAS (w/wing stores) |

| Fuel Capacity | |
|---------------|-------|
| Pounds | 2,037 |
| Gallons | 304 |

| Endurance | |
|------------|---|
| Payload | 2,250 lbs (in addition to full internal fuel) |
| Typical | 2.3 hours |
| Best Case | 2.6 hours 4.6 hours (with 2 auxiliary fuel tanks) |
| Worst case | 1.8 hours 3.6 hours (with 2 auxiliary fuel tanks) |

| Weapons Systems | |
|----------------------|---|
| Missiles | BGM-71 A/A-1/C/D/E/ E-5B TOW AGM-114A/ B/C/K Hellfire AGM-122A Sidarm AIM-9L/ M Sidewinder |
| Guns | M240D |
| Rockets | 2.75 in folding-fin aerial rockets (FFARs) |
| Guns | 20mm turret (+110 AZM,+30 elevation -50 degrees) 20mm ammo (MK 50 series, PGU 27/28/31 series) |
| Rockets | LAU-61/68 2.75 in-rockets, 7 or 19 shot pod LAU-10, 5 in-rocket, 4 shot pod |
| Typical mix: | AAW 2 X AIM-9, 2.75-in flechette, 20mm gun |
| OAS | Hellfire, TOW, 5-in rockets, internal gun |
| Armed reconnaissance | (RECCE Hellfire, TOW, 275-in rockets, internal gun (sidearm)) |
| Escort | Sidewinder, 2.75-in RP/high explosive (HE), internal gun, TOW/Hellfire |
| FAC(A) | Hellfire, TOW, 2.75 in-RP, internal gun |

AH-1W (Continued)

| Other Systems | |
|--------------------------------|---|
| GPS navigation | Embedded GPS/INS (1686 upgrade) |
| FLIR | Night targeting system |
| Laser | Pulsed, 1064 nm, neodymium: YAG; laser designator and ranging system. |
| Closed circuit television (TV) | TV camera |
| Videocassette recorder | Super VHS and VHS recording capability |
| Optics | Direct view |

| Communications Equipment | |
|--------------------------|--|
| VHF/UHF | 2 X AN/ARC-182 w/KY-58 encryption device |

| Aircraft Survivability Equipment | |
|----------------------------------|--|
| RWR | AN/APR-39V(2) radar warning receiver (pulsed) AN/APR-44 radar warning receiver (continuous wave) |
| IRCM | AN/ALQ-144 |
| Expendables | AN/ALE-39 countermeasures dispenser |

AV-8B

| Models | |
|---|--|
| AV-8B Day Attack dual mode tracker (DMT); AV-8B night attack (NVD/FLIR); AV-8B II + RADAR | |

| Dimensions | |
|------------|--|
| Height | 11 ft, 8 in |
| Weight | 4,600 lbs (empty) 39,000 lbs mixed gross weight |
| Wingspan | 30 ft, 3 in |

| Airspeed | |
|-------------------|--|
| Maximum endurance | 230 KIAS |
| Maximum airspeed | 585 knots calibrated airspeed (KCAS)/1.0 indicated Mach number (IMN) |

| Fuel Capacity | |
|---------------|---|
| Pounds | 7,759 internal; 11,749 with 2 external drop tanks; 830 with 4 external drop tanks |

| Endurance | |
|--|--|
| Varies significantly with ordnance load and mission profile. | |

| Communications Equipment | |
|--------------------------|---|
| VHF/UHF | 2 X RT-1250A/ARC with KY-58 encryption device |

| Weapons Systems | |
|-----------------|---|
| Guns | GAU-12 25mm gun |
| Rockets | 2.75 and 5 in-HE-FRAG, antitank/APERS HEGP, WP, red phosphorous (RP), ILLUM, and chaff |
| Bombs | Mk 81, Mk 82, Mk 83 Mk 20 Rockeye, MK 77 Napalm GBU-12, GBU-16 LGB CBU-72 FAE, CBU-78 Gator |
| Missiles | AGM-65E Laser Maverick AGM-65F IR Maverick (night attack only) AGM-122 Sidarm AIM-9 Sidewinder |
| Miscellaneous | LUU-2A/B Illuminum flares, Mk 58 Marine location marker |

| Other Systems | |
|-------------------|--|
| GPS navigation | Integrated P-coded GPS targeting system |
| FLIR | 1 power navigation FLIR |
| Dual mode tracker | laser spot tracker with 6 power TV video |
| Camera | VTR head-up display (HUD)/dual-mode tracker recorder |
| Litening pod | Targeting FLIR Laser designator/range finder IR marker Day camera Laser spot tracker Video recorder |

| Aircraft Survivability Equipment | |
|---|-------------------------------------|
| RWR | AN/ALR-67 radar warning receiver |
| Defensive electronic countermeasures (DECM) | AN/ALQ-164 DECM system |
| Expendables | AN/ALE-39 countermeasures dispenser |

F/A-18

| Dimensions | |
|------------|--|
| Height | 15 ft, 3 in |
| Weight | 24,500 lbs (empty) 59,000 lbs (maximum T/O) |
| Wingspan | 40 ft, 5 in |

| Airspeed | |
|-------------------|---|
| Maximum endurance | 250 KIAS (approximate) |
| Maximum airspeed | 750 KIAS (Naval Air Training and Operating Procedures Standardization) 650 KIAS (sea level) |

| Fuel Capacity | |
|---------------|---|
| Pounds | 13,000 (10,800 internal, 2,200 centerline tank) |
| Gallons | 1,919 (1,589 internal, 330 centerline tank) |

| Endurance | |
|---------------------------------------|------------|
| Typical | 1.5 hours |
| Best case | 2.75 hours |
| Worst case | 12 minutes |
| Hi Hi Hi profile with centerline tank | 2.75 hours |

| Weapons Systems | |
|-------------------------|---|
| Guns | 20mm internal gun |
| Rockets | LAU-10 (5-in rockets) LAU-51 (2.75-in rockets) LAU-61 (2.75 (2.75-in rockets) |
| Radar | APG-65 and APG-73 multimode radar |
| Missiles | AGM-65E Laser Maverick AGM-65F IR Maverick (night attack only) AGM-122 Sidarm AIM-9 Sidewinder |
| Miscellaneous | AGM-65E Laser Maverick AGM-65F IR Maverick AGM-88 HARM Walleye I/II AIM-7 Sparrow AIM-9 Sidewinder AIM-120 AMRAAM |
| Bombs | Mk 80 series Mk 20 Rockeye, GBU-10/12/16 CBU-59, antipersonnel, antimaterial CBU-78 Gator, Mk 77 Napalm Mk 36, Mk 40, Mk 4 (Destructors) Mk 52, Mk 55, Mk 56 (Bottom/Moored Mines) Mk 62, Mk 63, Mk 64, Mk 65 (Quickstrike Mines) |
| Miscellaneous | Tactical air-launch decoy |
| Typical mix: Air-to-air | 2 AIM-9, 2 to 4, AIM-120 6 second 20mm |
| Air-to-ground | 4 to 8 Mk 82 or 2 to 4 Mk 83 2 AIM-9, 2 AIM-120 |

F/A 18 (Continued)

| Other Systems | |
|-------------------|--|
| FLIR | AN/AAS-38 target FLIR AN/AAR-50 navigation FLIR(F/A-18C/D only) |
| Laser | AN/AS-1 73 laser spot tracker |
| Onboard recording | HUD recorder, digital display indicator (DDI) selectable AN/ASQ-1 73 35mm strike camera |

| Communications Equipment | |
|--------------------------|---|
| VHF/UHF | 2 X AN/ARC-20 w/KY- 58 encryption device |

| Aircraft Survivability Equipment | |
|----------------------------------|---|
| RWR | AN/ALR-67 radar warn- ing receiver |
| DECM | 2 X ALQ-126B AN/ ALQ-167 (tactical con- tingency pod) |
| Expendables | AN/ALE-47 counter- measures dispenser |

EA-6B ICAP 2

| Dimensions | |
|------------|--|
| Height | 16 ft, 8 in |
| Weight | 34,000 lbs (empty) 61,500 lbs (maximum T/O) |
| Wingspan | 53 ft |

| Airspeed | |
|-------------------|---|
| Maximum endurance | 53 to 55 IMN, aircraft configuration dependent |
| Maximum airspeed | 86 IMN (tactical jamming system [TJS] pod limitation) |

| Fuel Capacity | |
|---------------|--|
| Pounds | 25,400 total; 15,400 internal, 10,000 external |
| Gallons | 3,768 total; 2,268 internal, 1500 external |

| Endurance | |
|--|-----------------------|
| Varies greatly depending on aircraft configuration and mission profile; typical pod and external fuel load will result in approximately 1 hour and 45 minutes loiter without aerial refueling. | |
| Hi Lo Lo Hi profile with 4 X TJS pods | 425 nm mission radius |

| Weapons Systems | |
|-----------------|---|
| Jammers | 5 X AN/ALQ-99 tactical jamming pods |
| Radar | AN/APS-130 ground mapping radar |
| Missiles | AGM-88 HARM |
| Miscellaneous | AN/ALE- 43 corridor chaff pod AN/ALQ-99 onboard receiver system |
| Typical mix: | Load based on enemy order of battle and threat; typical load will be 3 to 4 tactical jamming pods, 1 to 2 AGM-88 or external fuel tanks |

| Other Systems | |
|--------------------|---|
| On-board recording | AN/ALQ-99 onboard/TJS recorder |
| Miscellaneous | UHF/VHF, AM/FM regency scanner USQ-113 communications jammer |

| Communications Equipment | |
|--------------------------|---|
| HF | 1 X AN/ARC-199 |
| VHF/UHF | 2 X AN/ARC-210 w/KY-58 encryption devices |

| Aircraft Survivability Equipment | |
|----------------------------------|---|
| RWR | None |
| DECM | 2 X ALQ-167 AN/ALQ-167 tactical contingency pod (training only) |
| Expendables | AN/ALE-39 counter-measures dispenser |

KC-130 (MODELS F/R/T)

| Dimensions | |
|----------------------|---|
| Height | 38 ft, 4 in |
| Weight | 90,000 lbs (empty) |
| Maximum gross weight | 155,000 lbs (service life extension program [SLEP]) 135,000 lbs (non-SLEP) |
| Length | 97 ft, 9 in |
| Wingspan | 132 ft, 7 in |

| Airspeed | |
|-------------------|----------|
| Maximum endurance | 240 KIAS |
| Maximum airspeed | 250 KIAS |

| Fuel Capacity | |
|----------------------|-------------------------------|
| Takeoff fuel KC-130F | 41,406 cargo 65,831 tanker |
| KC-130R/T | 59,606 cargo 84,032 tanker |

| Endurance | |
|-----------|----------|
| Typical | 13 hours |

| Aircraft Survivability Equipment | |
|--|--|
| ALQ-157 AAR-47 AN/ALE-139, APR-39* Night Vision lighting* | |
| * Only specially configured aircraft | |

| Air Delivery of Cargo and Personnel | |
|-------------------------------------|---------------------------------------|
| Container delivery system | Up to 16 bundles; 37,248 lbs |
| Military free fall | 64 jumpers |
| Heavy equipment | Vehicles, ammo, cargo (42,000 lbs) |
| Personnel static line | 64 jumpers |

| Short Unimproved Airfield Operations |
|--|
| Size and strength of runway are performance/weight dependent. Standard is 3,500 ft by 60 ft. |

| Mission Profiles |
|--|
| DASC(A) capable, radio relay, battlefield illumination |

| Rapid Ground Refueling Flow Rates (lbs per minute) | | | | |
|---|-------|---------------------|------------------------------|-----|
| Model | Point | In-Flight refueling | Single Point Refueling panel | Pod |
| AH-1W | 1 | 59 | 34 | 49 |
| | 2 | 54 | 29 | 44 |
| CH-46 | 1 | 79 | 44 | 59 |
| | 2 | 69 | 35 | 49 |
| CH-53 | 1 | 66 | 40 | 56 |
| | 2 | 56 | 31 | 46 |

KC-130 (Models F/R/T) (Continued)

| Air Land Delivery of Cargo and Personnel Cargo-configured Airframe | | |
|---|---------|--------|
| Passengers | Pallets | Troops |
| 0 | 6 | 0 |
| 92 | 1 | 76 |
| 72 | 2 | 44 |
| 52 | 3 | 33 |
| 41 | 4 | 32 |
| 24 | 5 | 16 |
| 70 litters with 6 attendants | | |
| 74 litters with 2 attendants | | |

| Communications Equipment | |
|--------------------------|--------------------|
| VHF | 2 X AN/AR126 |
| UHF | 2 X AN/ARC-159(V)1 |
| HF | 2 X AN/ARC-190 |
| SATCOM* | |
| DASC suite | AN/UYQ-3A |

| Other Systems | |
|---|--|
| Radar | AN/APS 133 (weather, ground, beacon IFF capable) INS GPS* Celestial Navigation* |
| * Some aircraft are configured to operate these systems | |

| Tanker-configured Airframe | |
|----------------------------|---------|
| Passengers | Pallets |
| 40 | 1 |
| 24 | 2 |

| Aerial Refueling Transfer Rates (JP-5 at Standard Daytime Temperature) | | |
|---|--------------------------------|---------------------------------|
| | 1 receiver (lbs per minute) | 2 receivers (lbs per minute) |
| F Cargo | 980 | 490 |
| R or T Cargo | 1,020 | 510 |
| F Tanker | 2,040 | 2,040 |
| R or T Tanker | 2,040 | 2,040 |

KC-130 (MODEL J)

| Dimensions | |
|----------------------|---|
| Weight | 88,500 cargo 90,200 tanker |
| Maximum gross weight | 155,000 lbs maximum normal 175,000 maximum alternative |
| Length | 97 ft, 9 in |
| Wingspan | 132 ft, 7 in |

| Airspeed | |
|-------------------|---|
| Maximum endurance | 150 KIAS at 20,000 ft weighing 120,000 lbs |
| Maximum airspeed | Never exceed speed 320 KIAS at 13,000 ft Normal cruise 320 TAS (TAS is set for maximum speed versus fuel flow) |

| Fuel Capacity | |
|---------------|------------|
| Cargo | 58,356 lbs |
| Tanker | 82,758 lbs |

| Aircraft Survivability Equipment | |
|---|--|
| AN/AAR-47, AN/ALE-47, AN/ALR-56M, AN/ALR-157 | |

| Communications Equipment | |
|--------------------------|------------|
| VHF | AN/ARC-222 |
| UHF | AN/ARC-164 |
| HF | AN/ARC-190 |
| VHF/UHF | AN/ARC-210 |

| Other Systems | |
|--------------------|--|
| Radar | LPCR-130J (weather, ground mapping, mono-pulse ground mapping, beacon, skin paint, wind sheer) |
| INS/GPS | EGI/radio solution with optional radar updates |
| Digital moving map | |
| HUD | |
| Glass cockpit | |

| Notes | |
|---|--|
| The aircraft has approximately 27% more power than the legacy aircraft. | |
| Currently, the aircraft cannot serve as a DASC platform. | |
| Maximum ceilings are considerably higher than those of the legacy airframes as are maximum airspeeds. | |
| The aircraft has a much lower fuel flow, but that can only be realized by higher altitudes. | |

| BLOCK | TITLE AND ELEMENTS | EXPLANATION | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------------|--|--|----|------------|----|-------------------|----|------------|----|-------|----|--------------------|----|--------|----|--------------------|----|-----------------|-----|------------------|-----|-----------------------|-----|--------------|-----|----------------------|-----|---------|
| 7. | INSTRUCTIONS | Indicates the time/coordinates of the PZ and DZ. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8. | LZ DESCRIPTION | Contains detailed information on the LZ. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9. | LZ WILL BE A. Unmarked B. Marked | Indicates if the LZ will be unmarked or marked. If the LZ will be marked, indicate the color. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10. | LZ MARKED WITH | Identifies the type LZ marking. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11. | COMMUNICATIONS | Identifies the call sign and frequency of PZ and DZ controllers. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12. | REMARKS | <p>Allows the requestor to add other essential information not provided for in the request format. For CASEVAC, include type casualties/wounds, litter, ambulatory status, medical attendant requirements or any other special considerations. If possible, medical personnel should provide a medical regulating code (MRC):</p> <table> <tbody> <tr> <td>MC</td> <td>Pediatrics</td> </tr> <tr> <td>MM</td> <td>Internal Medicine</td> </tr> <tr> <td>NP</td> <td>Psychiatry</td> </tr> <tr> <td>SB</td> <td>Burns</td> </tr> <tr> <td>SC</td> <td>Spinal Cord Injury</td> </tr> <tr> <td>SG</td> <td>OB/GYN</td> </tr> <tr> <td>SO</td> <td>Orthopedic Surgery</td> </tr> <tr> <td>SS</td> <td>General Surgery</td> </tr> <tr> <td>SSC</td> <td>Thoracic Surgery</td> </tr> <tr> <td>SSM</td> <td>Maxillofacial Surgery</td> </tr> <tr> <td>SSN</td> <td>Neurosurgery</td> </tr> <tr> <td>SSO</td> <td>Ophthalmology Injury</td> </tr> <tr> <td>SSU</td> <td>Urology</td> </tr> </tbody> </table> | MC | Pediatrics | MM | Internal Medicine | NP | Psychiatry | SB | Burns | SC | Spinal Cord Injury | SG | OB/GYN | SO | Orthopedic Surgery | SS | General Surgery | SSC | Thoracic Surgery | SSM | Maxillofacial Surgery | SSN | Neurosurgery | SSO | Ophthalmology Injury | SSU | Urology |
| MC | Pediatrics | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MM | Internal Medicine | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NP | Psychiatry | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SB | Burns | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SC | Spinal Cord Injury | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SG | OB/GYN | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SO | Orthopedic Surgery | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SS | General Surgery | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SSC | Thoracic Surgery | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SSM | Maxillofacial Surgery | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SSN | Neurosurgery | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SSO | Ophthalmology Injury | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SSU | Urology | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | ACKNOWLEDGED Bn/regt Division Other | Indicates that the request has been copied for concurrence by the GCE. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SECTION II. COORDINATION | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13. | NSFS | NSFS coordination. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14. | ARTILLERY | Artillery coordination. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15. | AIO/G-2/G-3 | Air intelligence Officer, G-2, G-3 coordination. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16. | ESCORT/AERIAL REFUELING | Indicates if escort or aerial refueling support is required for the mission. Block A indicates support has been requested. Block B indicates TACC has assigned assets. After assets are assigned, the TACC enters the rest of the data. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17. | REQUEST A. Approved B. Disapproved | Indicates the approval or disapproval of the request. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18. | BY | Indicates the individual who approved or disapproved the request. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19. | REASON FOR DISAPPROVAL | Self-explanatory. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20. | RESTRICTIVE FIRE/AIR PLAN A. Is Not B. Number | The restrictive fire/air plan refers to the airspace coordination area (ACA). An ACA is a three-dimensional block of airspace where friendly aircraft are reasonably safe from friendly surface fires. A plan number or code name is issued, as appropriate. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21. | IS IN EFFECT A. From Time _____ B. To Time _____ | Establishes the time period that the ACA plan will be in effect. | | | | | | | | | | | | | | | | | | | | | | | | | | |

| BLOCK | TITLE AND ELEMENTS | EXPLANATION |
|----------------------------------|--|---|
| 22. | LOCATION A. From Coordinates _____ B. To Coordinates _____ | Grid coordinates of the start/end points of the ACA centerline. |
| 23. | WIDTH (METERS) | Defines the ACA from either side of the centerline. |
| 24. | ALTITUDE/VERTEX A. Max/Vertex _____ B. Minimum _____ | ACA in feet above mean sea level. Use block A for VERTEX only. |
| SECTION III. MISSION DATA | | |
| 25. | MISSION NUMBER | Indicates mission number. |
| 26. | CALL SIGN | Flight call sign of mission aircraft. |
| 27. | NO/TYPE AIRCRAFT | Self-explanatory. |
| 28. | EST/ACT TAKEOFF | Estimated or actual time the mission aircraft will take off. |
| 29. | ETA/ATA | Estimated or actual time of arrival of the mission air-craft in the objective area. |
| 30. | MISSION CANCELLED/DIVERTED | Indicates if mission is cancelled or diverted. By _____ indicates the individual/agency/unit who cancelled or diverted the mission. |
| 31. | TERMINATE REQUEST | Indicates conditions under which to terminate the request. |
| 32. | MISSION RESULTS | Self-explanatory, include pilot reports. |

| ASSAULT SUPPORT REQUEST FORM | | | |
|--|---|---|---|
| SECTION I — MISSION REQUEST | | | DATE |
| 1. UNIT CALLED | THIS IS | REQUEST NUMBER | SENT |
| 2. REQUEST FOR A. HELICOPTER B. FIXED-WING | 3. MISSION CATEGORIES A. PREPLANNED: PRECEDENCE _____ B. PRIORITY _____ C. IMMEDIATE: PRIORITY _____ | 4. TYPE MISSION A. TACTICAL B. ADMINISTRATIVE | TIME BY |
| 5. MISSION IS A. ASSAULT TRANSPORT B. LOGISTICAL SUPPORT C. AIR EVACUATION D. MEDEVAC E. AERIAL DELIVERY F. C2 G. TRAP H. SAR I. ILLUMINATION J. SPECIAL OPS K. OTHER _____ | | 6. PAYLOAD IS A. TROOPS _____ B. EXTERNAL CARGO (WT) _____ C. INTERNAL CARGO (WT/CU) _____ LARGEST ITEM (LxWxH) _____ | |
| 7. INSTRUCTIONS | | | |
| PICKUP TIME | COORDINATES | LZ TIME | COORDINATES |
| A. _____ | _____ | _____ | _____ |
| B. _____ | _____ | _____ | _____ |
| C. _____ | _____ | _____ | _____ |
| D. _____ | _____ | _____ | _____ |
| 8. LZ DESCRIPTION | | | |
| A. WIND DIRECTION/VELOCITY _____ | | B. ELEVATION _____ (FT MSL) | |
| C. SIZE _____ | | D. OBSTACLES _____ | |
| E. FRIENDLY POS _____ | | DIR/DIST _____ / _____ | |
| F. ENEMY POS _____ | | DIR/DIST _____ / _____ | |
| G. LAST FIRE RECEIVED TIME/TYPE _____ / _____ | | DIR/DIST _____ / _____ | |
| 9. LZ WILL BE | A. UNMARKED B. MARKED WITH COLOR _____ | 10. LZ MARKED WITH | A. PANELS D. MIRROR E. LIGHTS F. SMOKE G. NAVAID C. FLARES G. OTHER |
| 11. COMMUNICATIONS | A. PICKUP ZONE CALL SIGN _____ / FREQUENCY (COLOR CODE) _____ B. LZ CALL SIGN _____ / FREQUENCY (COLOR CODE) _____ | | |
| 12. REMARKS | | | ACKNOWLEDGED |
| | | | BN/REGT |
| | | | DIVISION |
| | | | OTHER |
| SECTION II — COORDINATION | | | |
| 13. MSFS | | | |
| 16. ESCORT/AERIAL REFUELING | | 17. REASON FOR DISAPPROVAL | |
| A. REQUESTED C. NO/TYPE A/C _____ E. COMMUNICATIONS _____ | | B. ASSIGNED D. CALL SIGN _____ F. ARMAMENT _____ | |
| 17. REQUEST APPROVED DISAPPROVED | | 19. REASON FOR DISAPPROVAL | |
| 20. RESTRICTIVE FIRE/AIR PLAN | | 21. IS IN EFFECT | |
| A. IS NOT B. NUMBER | | A. (FROM TIME) _____ B. (TO TIME) _____ | |
| 22. LOCATION | | 23. WIDTH (METERS) | 24. ALTITUDE/VERTEX |
| A. _____ (FROM COORDINATES) B. _____ (TO COORDINATES) | | _____ | A. _____ B. _____ MAX/VERTEX MINIMUM |
| SECTION III — MISSION DATA | | | |
| 25. MISSION NUMBER | 26. CALL SIGN | 27. NO/TYPE AIRCRAFT | |
| 28. EST/ACT TAKEOFF | | 29. ETA/ATA | |
| 30. MISSION CANCELLED/DIVERTED | | BY: _____ | |
| A. CANCELLED B. DIVERTED | | | |
| 31. TERMINATE REQUEST | | A. GO/NO GO DTG _____ B. WHEN COMPLETED _____ | |
| 32. MISSION RESULTS | | | ACKNOWLEDGE |
| A. COMPLETE | | | _____ |
| B. INCOMPLETE | | | _____ |
| C. OTHER _____ | | | _____ |

Figure B-1. Assault Request Form.

APPENDIX C

GLOSSARY

SECTION I. ACRONYMS AND ABBREVIATIONS

| | | | |
|-----------------------|--|----------------------------------|--|
| AAA | antiaircraft artillery | AN/ALR-67 | radar warning receiver |
| AAW | antiair warfare | AN/APR-39(V)1/2 | radar signal detecting set |
| AAWS | antiair warfare section | AN/APR-44 | radar warning set |
| ACA | airspace coordination area | AN/APS-130 | multimode search radar |
| ACE | aviation combat element | AN/APS-133 | weather radar system |
| AGM-65E | Maverick missile | AN/ARC-20 | radio with/KY-58 encryption device |
| AGM-65F | Maverick imaging infrared missile | AN/ARC-94 | single side band/high frequency command transceiver |
| AGM-88 | high-speed antiradiation missile | AN/ARC-159(V)1 | ultrahigh radio set |
| AGM-114 | Hellfire air-launched antitank missile | AN/ARC-174 | high frequency radio system |
| AGM-122A | Sidearm guided missile | AN/ARC-182 | very high frequency/ultrahigh frequency radio system |
| AH-1 | Cobra | AN/ARC-190 | high frequency liaison radio set |
| AH-1W | Super Cobra | AN/ARC-199 | high frequency radio set |
| AIM-7 | radar-guided, air-to-air missile with high-explosive warhead (Sparrow) | AN/ARC-210 | single-channel ground and airborne radio system |
| AIM-9/9L/9M | Sidewinder missile | AN/ASQ-1 | 35mm strike camera |
| AIM-120 | advanced medium-range, air-to-air missile | AN/AVR-2 | laser detection system |
| AMRAAM | advanced medium-range, air-to-air missile | AN/UYQ-3A | mobile direct air support center (airborne) |
| AIO | air intelligence officer | AO | area of operations |
| AMC | air mission commander | APAM | antipersonnel, antimaterial |
| AN/AAQ-16B | forward-looking infrared system | APERS | antipersonnel |
| AN/AAQ-22 | SAFIRE navigational thermal imaging system) | APG 65/73 | multimode radar |
| AN/AAR-47 | missile warning system | APR/39(V)2 | radar signal detecting set |
| AN/AAR-50 | thermal imaging navigation set | ARM | antiradiation missile |
| AN/AAS-38 | Terminator advanced targeting forward-looking infrared pod | ASC(A) | assault support coordinator (airborne) |
| AN/ALE-39 | chaff and flare dispenser | ASCS | air support control section |
| AN/ALE-43 | chaff cutter and dispenser pod | ASE | air support element |
| AN/ALE-139 | tactical jamming system | ASR | assault support request |
| AN/ALQ-99 | tactical jamming system | ATCS | air traffic control section |
| AN/ALQ-126B | deceptive electronic countermeasures system | ATO | air tasking order |
| AN/ALQ-144 | countermeasures set | AV-8B | Super Harrier |
| AN/ALQ-157 | infrared countermeasures system | BGM-71A/A-1/C/D/E/E-5B | tube-launched, optically-tracked, wire-guided antitank guided weapon |
| AN/ALQ-164 | radio frequency jammer pod | C2 | command and control |
| AN/ALQ-167 | electronic countermeasures noise and deception jamming system | | |

| | | | |
|---------------------|---|--------------------|---|
| CAS..... | close air support | GAU-12 | 25mm Gatling gun |
| CASEVAC | casualty evacuation | GAU-16 | 50 caliber machine gun |
| CATF | commander, amphibious task force | GAU-17 | 7.62mm automatic gun |
| CBU-59..... | antipersonnel, antimaterial bomb | GBU-10/12/16 | laser guided bomb units (Paveway II) |
| CBU-72..... | 550-pound cluster bomb unit (fuel/air explosive) | GCE | ground combat element |
| CBU-78..... | 500-pound cluster bomb unit containing 45 antitank and 15 antipersonnel mines (Gator) | GPS..... | global positioning system |
| CCTV | closed circuit television | HARM | high-speed antiradiation missile |
| CDNU..... | control display navigation unit | HCS..... | helicopter coordination section |
| CH-46/46E ... | medium-assault transport aircraft (Sea Knight) | HDC | helicopter direction center |
| CH-53/53E/53D | heavy-assault transport aircraft (Sea Stallion) | HE..... | high explosive |
| CLF..... | commander, landing force | HE-FRAG..... | high-explosive fragmentation |
| CNCS | communications/navigation control system | HEGP | high-explosive general purpose |
| COA | course of action | HF | high frequency |
| CSSE..... | combat service support element | HMM | Marine medium helicopter squadron |
| | | HMM-362..... | Marine medium helicopter squadron 362 |
| DAMA | demand assigned multiple access | HMR-161 | Marine Helicopter Transport Squadron 161 |
| DAO | Defense Attaché Office | HRS-1 | Sikorsky helicopter |
| DAS | direct air support | HST..... | helicopter support team |
| DASC | direct air support center | HUC | helicopterborne unit commander |
| DASC(A) ... | direct air support center (airborne) | HUD | head-up display |
| DDI..... | digital display indicator | ICAP..... | improved capability |
| DECM.... | defensive electronic countermeasures | IFF..... | identification, friend or foe |
| DMT | dual mode tracker | IFR | in-flight refueling |
| DZ..... | drop zone | ILLUM | illumination |
| | | IMN..... | indicated Mach number |
| EA-6B | Prowler | INS | inertial navigation system |
| EGI | embedded GPS/INS | IPB .. | intelligence preparation of the battlespace |
| EMCON | emission control | IRCM | infrared countermeasures |
| EW | electronic warfare | | |
| | | JCS | Joint Chiefs of Staff |
| F/A-18A/C/D | Hornet | JFC | joint force commander |
| FAC(A)..... | forward air controller (airborne) | JP..... | joint publication |
| FAE..... | fuel/air explosive | JP-5 | jet fuel |
| FARP | forward arming and refueling point | JTF | joint task force |
| FEBA | forward edge of the battle area | | |
| FFAR | folding-fin aerial rocket | KC-130 | multirole, multimission tactical tanker/transport |
| FFCC..... | force fires coordination center | KCAS | knots calibrated airspeed |
| FHA | foreign humanitarian assistance | KIAS..... | knots indicated airspeed |
| FLIR | forward-looking infrared | kt..... | knot (nautical miles per hour) |
| FM..... | field manual (Army) | KY-58..... | encrypted ultra high frequency communications system |
| FOB..... | forward operating base | | |
| FSCC..... | fire support coordination center | | |

| | | | |
|-----------------|--|---------------|---|
| LAU-10/51/61/68 | rocket launcher | OAS | offensive air support |
| LCAC | landing craft air cushion | OMFTS | operational maneuver from the sea |
| LGB | laser guided bomb | OPSEC | operations security |
| LSR | limited scale raid | PAX | passengers |
| LUU-2A/B | illumination flare | PROVMAG | provisional Marine air group |
| LZ | landing zone | PSS | plans and support section |
| M240D | 7.62mm machine gun | PZ | pickup zone |
| MAB | Marine amphibious brigade | RECCE | reconnaissance |
| MACCS | Marine air command and control system | RGR | rapid ground refueling |
| MAGR | miniature airborne GPS system | ROE | rules of engagement |
| MAGTF | Marine air-ground task force | RP | red phosphorous |
| MASS | Marine air support squadron | RT-1250A/ARC | remote receiver-transmitter with MIL-STD-1553B data bus interface |
| MATCD | Marine air traffic control detachment | RWR | radar warning receiver |
| MBA | main battle area | SADF | sector air defense facility |
| MCDP | Marine Corps doctrinal publication | SAM | surface-to-air missile |
| MCO | Marine Corps order | SAR | search and rescue |
| MCPP | Marine Corps Planning Process | SATCOM | satellite communications |
| MCWP | Marine Corps warfighting publication | SEAD | suppression of enemy air defenses |
| MEF | Marine expeditionary force | SLEP | service life extension program |
| METT-T | mission, enemy, terrain and weather, troops and support available-time available | SPR | single point refueling |
| MEU | Marine expeditionary unit | STOM | ship-to-objective maneuver |
| MEU(SOC) | Marine expeditionary unit (special operations capable) | TAC(A) | tactical air coordinator (airborne) |
| MK 20 | dumb bomb (Rockeye) | TACC (Marine) | tactical air command center |
| MK 36/40/41 | destructor | TACC (Navy) | tactical air control center |
| MK 50 | advanced lightweight torpedo | TACP | tactical air control party |
| MK 52 | 1000-pound aircraft-laid bottom mine | TADC | tactical air direction center |
| MK 55 | 2000-pound aircraft-laid bottom mine | TAOC | tactical air operations center |
| MK 56 | 2000-pound aircraft-laid moored mine | TAS | true air speed |
| MK 58 | marine location marker | TCN | third country national |
| MK 62/63/64/65 | Quickstrike mine | TJS | tactical jamming system |
| MK 77 | incendiary bomb (Napalm) | T/O | table of organization |
| MK 81/82/83 | low drag general purpose bomb | TOW | tube launched, optically-tracked, wire-guided |
| mm | millimeter | TRAP | tactical recovery of aircraft and personnel |
| MMT | Marine air traffic control mobile team | TTP | tactics, techniques, and procedures |
| MOOTW | military operations other than war | TV | television |
| MRC | medical regulating code | UAV | unmanned aerial vehicle |
| NATOPS | Naval Air Training and Operating Procedures Standardization | UH-1/1N/1Y | assault utility helicopter (Iroquois, commonly called Huey) |
| NEO | noncombatant evacuation operation | UH-34D | Seahorse |
| nm | nautical mile | UHF | ultrahigh frequency |
| NSFS | naval surface fire support | | |
| NVD | night vision device | | |
| NWP | naval warfare publication | | |

ULQ-19 responsive jammer set (RACJAM)

US United States

VHF very high frequency

VHS video home system

VOR very high frequency
omnidirectional range

Walleye self-guided, high-explosive
weapon system

WP white phosphorous

XM-218(GAU-15/A) 50 caliber machine gun

YAG Yttrium-Aluminum-Garnet

SECTION II. DEFINITIONS

air contingency MAGTF—An on-call, combat-ready MAGTF that deploys by airlift. Air contingency MAGTFs vary in size based on mission requirements and the availability of airlift. Because they deploy by air, they generally have a limited organic logistic capability, and require an arrival airfield. Air contingency MAGTFs usually are activated to respond to developing crises, and may deploy independently or in conjunction with other expeditionary forces. **Also called ACM. See also aviation combat element; combat service support element; ground combat element; Marine air-ground task force; Marine expeditionary force; Marine expeditionary force (Forward); Marine expeditionary unit; special purpose Marine air-ground task force; task force.** (Proposed for inclusion in the next edition of MCRP 5-12C.)

air defense—All defensive measures designed to destroy attacking enemy aircraft or missiles in the Earth's envelope of atmosphere, or to nullify or reduce the effectiveness of such attack. (JP 1-02)

air interdiction—Air operations conducted to destroy, neutralize, or delay the enemy's military potential before it can be brought to bear effectively against friendly forces at such distance from friendly forces that detailed integration of each air mission with the fire and movement of friendly forces is not required. (JP 1-02)

air reconnaissance—The acquisition of information by employing visual observation and/or sensors in air vehicles. (JP 1-s02)

air superiority—That degree of dominance in the air battle of one force over another which permits the conduct of operations by the former and its related land, sea and air forces at a given time and place without prohibitive interference by the opposing force. (JP 1-02)

air threat levels—The conditions which relate to the enemy's air defense capability against airborne friendly aircraft. There are three levels of air threat:

a. **low**—An air threat environment which permits combat operations and support to proceed without prohibitive interference. Associated tactics and techniques do not normally require extraordinary measures for preplanned or immediate support.

b. **medium**—An air threat environment in which the specific aircraft performance and weapons system capability allow acceptable exposure time to enemy air defenses. This air threat environment restricts the flexibility of tactics in the immediate target/objective area. It is an environment in which the enemy may have limited radar and/or electro-optical acquisition capability at medium ranges, but the air defense system is not supported by fully integrated fire control systems.

c. **high**—An air threat environment created by an opposing force possessing air defense combat power including integrated fire control systems and electronic warfare capabilities which would seriously diminish the ability of friendly forces to provide necessary air support. This air threat environment might preclude missions such as immediate close air support, as the requirement for effective radio communications and coordination may not be possible. (MCRP 5-12C)

antiair warfare—A US Navy/US Marine Corps term used to indicate that action required to destroy or reduce to an acceptable level the enemy air and missile threat. It includes such measures as the use of interceptors, bombers, anti-aircraft guns, surface-to-air and air-to-air missiles, electronic attack, and destruction of the air or missile threat both before and after it is launched. Other measures which are taken to minimize the effects of hostile air action are cover, concealment,

dispersion, deception (including electronic), and mobility. Also called **AAW**. (MCRP 5-12C)

armed reconnaissance—A mission with the primary purpose of locating and attacking targets of opportunity, i.e., enemy materiel, personnel, and facilities, in assigned general areas or along assigned ground communications routes, and not for the purpose of attacking specific briefed targets. (JP 1-02)

assault support—The use of aircraft to provide tactical mobility and logistic support for the MAGTF, the movement of high priority cargo and personnel within the immediate area of operations, in-flight refueling, and the evacuation of personnel and cargo. (MCRP 5-12C)

assault support coordinator (airborne)—An aviator who coordinates, from an aircraft, the movement of aviation assets during assault support operations. Also called **ASC(A)**. Formerly referred to as **helicopter coordinator (airborne) or HC(A)**. (MCRP 5-12C).

aviation combat element—The core element of a Marine air-ground task force (MAGTF) that is task-organized to conduct aviation operations. The aviation combat element (ACE) provides all or a portion of the six functions of Marine aviation necessary to accomplish the MAGTF's mission. These functions are anti-air warfare, offensive air support, assault support, electronic warfare, air reconnaissance, and control of aircraft and missiles. The ACE is usually composed of an aviation unit headquarters and various other aviation units or their detachments. It can vary in size from a small aviation detachment of specifically required aircraft to one or more Marine aircraft wings. The ACE may contain other Service or foreign military forces assigned or attached to the MAGTF. The ACE itself is not a formal command. Also called **ACE**. See also **combat service support element; command element; ground combat element; Marine air-ground task force; Marine expeditionary force; Marine expeditionary force**

(forward); Marine expeditionary unit; special purpose Marine air-ground task force. (Proposed for inclusion in the next edition of MCRP 5-12C.)

casualty evacuation—The movement of the sick, wounded or injured. It begins at the point of injury or onset of disease. It includes both movement to and between treatment facilities. All units have an evacuation capability. Any vehicle may be used to evacuate casualties. If a medical vehicle is not used it should be replaced with one at the first opportunity. Similarly aeromedical evacuation should replace surface evacuation at the first opportunity. (MCRP 5-12C)

close air support—Air action by fixed and rotary-wing aircraft against hostile targets which are in close proximity to friendly forces and which require detailed integration of each air mission with the fire and movement of those forces. Also called **CAS**. (JP 1-02)

combat service support element—The core element of a Marine air-ground task force (MAGTF) that is task-organized to provide the combat service support necessary to accomplish the MAGTF's mission. The combat service support element (CSSE) varies in size from a small detachment to one or more force service support groups. It provides supply, maintenance, transportation, general engineering, health services, and a variety of other services to the MAGTF. It may also contain other Service or foreign military forces assigned or attached to the MAGTF. The CSSE itself is not a formal command. Also called **CSSE**. See also **aviation combat element; command element; ground combat element; Marine air-ground task force; Marine expeditionary force; Marine expeditionary force (Forward); Marine expeditionary unit; special purpose Marine air-ground task force.** (Proposed for inclusion in the next edition of MCRP 5-12C.)

combined arms—The full integration of combat arms in such a way that to counteract one, the

enemy must become more vulnerable to another. (MCRP 5-12C)

command element—The core element of a Marine air-ground task force that is the headquarters. The command element (CE) is composed of the commander, general or executive and special staff sections, headquarters section, and requisite communications support, intelligence and reconnaissance forces, necessary to accomplish the MAGTF's mission. The CE provides command and control, intelligence, and other support essential for effective planning and execution of operations by the other elements of the MAGTF. The CE varies in size and composition and may contain other Service or foreign military forces assigned or attached to the MAGTF. Also called CE. See also **aviation combat element; combat service support element; ground combat element; Marine air-ground task force; Marine expeditionary force; Marine expeditionary force (forward); Marine expeditionary unit; special purpose Marine air-ground task force**. (Proposed for inclusion in the next edition of MCRP 5-12C.)

communications intelligence—Technical information and intelligence derived from foreign communications by other than the intended recipients. Also called **COMINT**. (JP 1-02)

concept of operations—A verbal or graphic statement, in broad outline, of a commander's assumptions or intent in regard to an operation or series of operations. The concept of operations frequently is embodied in campaign plans and operation plans; in the latter case, particularly when the plans cover a series of connected operations to be carried out simultaneously or in succession. The concept is designed to give an overall picture of the operation. It is included primarily for additional clarity of purpose. Also called **commander's concept**. (JP 1-02)

counterinsurgency—Those military, paramilitary, political, economic, psychological, and civic actions taken by a government to defeat insurgency. (JP 1-02)

deception—Those measures designed to mislead the enemy by manipulation, distortion, or falsification of evidence to induce him to react in a manner prejudicial to his interests. (JP 1-02)

deep air support—Air action against enemy targets at such a distance from friendly forces that detailed integration of each mission with fire and movement of friendly forces is not required. Deep air support missions are flown on either side of the fire support coordination line; the lack of a requirement for close coordination with the fire and movement of friendly forces is the qualifying factor. (MCRP 5-12C)

demonstration—1. (DOD/NATO) An attack or show of force on a front where a decision is not sought, made with the aim of deceiving the enemy 2. (DOD only) In military deception, a show of force in an area where a decision is not sought made to deceive an adversary. It is similar to a feint but no actual contact with the adversary is intended. (JP 1-02)

direct air support center—The principal air control agency of the US Marine air command and control system responsible for the direction and control of air operations directly supporting the ground combat element. It processes and coordinates requests for immediate air support and coordinates air missions requiring integration with ground forces and other supporting arms. It normally collocates with the senior fire support coordination center within the ground combat element and is subordinate to the tactical air command center. Also called **DASC**. (JP 1-02)

direct air support center (airborne)—An airborne aircraft equipped with the necessary

staff personnel, communications, and operations facilities to function as a direct air support center. Also called **DASC-A**. (JP 1-02)

direct support—A mission requiring a force to support another specific force and authorizing it to answer directly the supported force's request for assistance. (JP 1-02)

electronic warfare—Any military action involving the use of electromagnetic and directed energy to control the electro-magnetic spectrum or to attack the enemy. Also called **EW**. The three major subdivisions within electronic warfare are: electronic attack, electronic protection, and electronic warfare support.

a. **electronic attack**. That division of electronic warfare involving the use of electromagnetic, directed energy, or antiradiation weapons to attack personnel, facilities, or equipment with the intent of degrading, neutralizing, or destroying enemy combat capability and is considered a form of fires. Also called **EA**. EA includes: 1) actions taken to prevent or reduce an enemy's effective use of the electromagnetic spectrum, such as jamming and electromagnetic deception, and 2) employment of weapons that use either electromagnetic or directed energy as their primary destructive mechanism (lasers, radio frequency weapons, particle beams). b. **electronic protection**. That division of electronic warfare involving passive and active means taken to protect personnel, facilities, and equipment from any effects of friendly or enemy employment of electronic warfare that degrade, neutralize, or destroy friendly combat capability. Also called EP. c. **electronic warfare support**. That division of electronic warfare involving actions tasked by, or under direct control of, an operational commander to search for, intercept, identify, and locate or localize sources of intentional and unintentional radiated electromagnetic energy for the purpose of immediate threat recognition, targeting, planning, and conduct of future operations. Thus, electronic warfare support provides information required for decisions involving elec-

tronic warfare operations and other tactical actions such as threat avoidance, targeting, and homing. Also called **ES**. Electronic warfare support data can be used to produce signals intelligence, provide targeting for electronic or destructive attack, and produce measurement and signature intelligence. (JP 1-02)

feint—1. In military deception, an offensive action involving contact with the adversary conducted for the purpose of deceiving the adversary as to the location and/or time of the actual main offensive action. (JP 1-02). 2. A limited-objective attack involving contact with the enemy, varying in size from a raid to a supporting attack. Feints are used to cause the enemy to react in three predictable ways: to employ reserves improperly, to shift supporting fires, or to reveal defensive fires. (MCRP 5-12C)

final protective fire—An immediately available prearranged barrier of fire designed to impede enemy movement across defensive lines or areas. (JP 1-02)

fire support—1. Fires that directly support land, maritime, amphibious, and special operations forces to engage enemy forces, combat formations, and facilities in pursuit of tactical and operational objectives. See also **fires**. (JP 1-02). 2. In Marine Corps usage, assistance to elements of the Marine air-ground task force engaged with the enemy rendered by other firing units, including (but not limited to) artillery, mortars, naval surface fire support, and offensive air support. (MCRP 5-12C)

fire support coordination center—A single location in which are centralized communications facilities and personnel incident to the coordination of all forms of fire support. Also called **FSCC**. (JP 1-02)

fire support coordination line—A fire support coordinating measure that is established and adjusted by appropriate land or amphibious force commanders within their boundaries in consultation with superior, subordinate, supporting, and

affected commanders. Fire support coordination lines (FSCLs) facilitate the expeditious attack of surface targets of opportunity beyond the coordinating measure. An FSCL does not divide an area of operations by defining a boundary between close and deep operations or a zone for close air support. The FSCL applies to all fires of air, land, and sea-based weapon systems using any type of ammunition. Forces attacking targets beyond an FSCL must inform all affected commanders in sufficient time to allow necessary reaction to avoid fratricide. Supporting elements attacking targets beyond the FSCL must ensure that the attack will not produce adverse effects on, or to the rear of, the line. Short of an FSCL, all air-to-ground and surface-to-surface attack operations are controlled by the appropriate land or amphibious force commander. The FSCL should follow well defined terrain features. Coordination of attacks beyond the FSCL is especially critical to commanders of air, land, and special operations forces. In exceptional circumstances, the inability to conduct this coordination will not preclude the attack of targets beyond the FSCL. However, failure to do so may increase the risk of fratricide and could waste limited resources. Also called **FSCL**. (JP 1-02)

forward air controller—A member of the tactical air control party who, from a forward ground or airborne position, controls aircraft in close air support of ground troops. Also called **FAC**. (JP 1-02)

forward air controller (airborne)—A specifically trained and qualified aviation officer who exercises control from the air of aircraft engaged in close air support of ground troops. The forward air controller (airborne) is normally an airborne extension of the tactical air control party. Also called **FAC(A)**. (JP 1-02)

forward arming and refueling point—A temporary facility—organized, equipped, and deployed by an aviation commander, and normally located in the main battle area closer to the area where operations are being conducted than the aviation unit's combat service area—to

provide fuel and ammunition necessary for the employment of aviation maneuver units in combat. The forward arming and refueling point permits combat aircraft to rapidly refuel and rearm simultaneously. Also called **FARP**. (JP 1-02)

forward-looking infrared—An airborne, electro-optical thermal imaging device that detects far-infrared energy, converts the energy into an electronic signal, and provides a visible image for day or night viewing. Also called **FLIR**. (JP 1-02)

forward operating base—An airfield used to support tactical operations without establishing full support facilities. The base may be used for an extended time period. Support by a main operating base will be required to provide backup support for a forward operating base. Also called **FOB**. (JP 1-02)

general support—That support which is given to the supported force as a whole and not to any particular subdivision thereof. (JP 1-02)

ground combat element—The core element of a Marine air-ground task force (MAGTF) that is task-organized to conduct ground operations. It is usually constructed around an infantry organization but can vary in size from a small ground unit of any type, to one or more Marine divisions that can be independently maneuvered under the direction of the MAGTF commander. It includes appropriate ground combat and combat support forces and may contain other Service or foreign military forces assigned or attached to the MAGTF. The GCE itself is not a formal command. Also called **GCE**. See also **aviation combat element; combat service support element; command element; Marine air-ground task force; Marine expeditionary force; Marine expeditionary force (forward); Marine expeditionary unit; special purpose Marine air-ground task force**. (Proposed for inclusion in the next edition of MCRP 5-12C.)

helicopter support team—A task organization formed and equipped for employment in a landing

zone to facilitate the landing and movement of helicopterborne troops, equipment and supplies, and to evacuate selected casualties and enemy prisoners of war. (JP 1-02). Within the Marine Corps, helicopter support teams are sourced from the force service support group, specifically from the Landing Support Company of the Support Battalion. Also called **HST**. (Proposed for inclusion in the next edition of MCRP 5-12C.)

immediate air support—Air support to meet specific requests which arise during the course of a battle and which by their nature cannot be planned in advance. (JP 1-02)

maneuver warfare—A warfighting philosophy that seeks to shatter the enemy's cohesion through a variety of rapid, focused, and unexpected actions which create a turbulent and rapidly deteriorating situation with which the enemy cannot cope. (MCRP 5-12C)

Marine air command and control system—A system which provides the aviation combat element commander with the means to command, coordinate, and control all air operations within an assigned sector and to coordinate air operations with other Services. It is composed of command and control agencies with communications-electronics equipment that incorporates a capability from manual through semiautomatic control. Also called **MACCS**. (JP 1-02)

Marine air-ground task force—The Marine Corps principal organization for all missions across the range of military operations, composed of forces task-organized under a single commander capable of responding rapidly to a contingency anywhere in the world. The types of forces in the Marine air-ground task force (MAGTF) are functionally grouped into four core elements: a command element, an aviation combat element, a ground combat element, and a combat service support element. The four core elements are categories of forces, not formal commands. The basic structure of the MAGTF never varies, though the number, size, and type of

Marine Corps units comprising each of its four elements will always be mission dependent. The flexibility of the organizational structure allows for one or more subordinate MAGTFs, other Service, and/or foreign military forces, to be assigned or attached. Also called **MAGTF**. See also **aviation combat element; combat service support element; command element; ground combat element; Marine expeditionary force; Marine expeditionary force (forward); Marine expeditionary unit; special purpose Marine air-ground task force**. (Proposed for inclusion in the next edition of MCRP 5-12C.)

Marine expeditionary brigade—A Marine air-ground task force that is constructed around a reinforced infantry regiment, a composite Marine aircraft group, and a brigade service support group. The Marine expeditionary brigade (MEB), commanded by a general officer, is task-organized to meet the requirements of a specific situation. It can function as part of a joint task force, or as the lead echelon of the Marine expeditionary force (MEF), or alone. It varies in size and composition, and is larger than a Marine expeditionary unit but smaller than a MEF. The MEB is capable of conducting missions across the full range of military operations. It may contain other Service or foreign military forces assigned or attached. Also called **MEB**. (Proposed for inclusion in the next edition of MCRP 5-12C.)

Marine expeditionary force—The largest Marine air-ground task force and the Marine Corps principal warfighting organization, particularly for larger crises or contingencies. It is task-organized around a permanent command element and normally contains one or more Marine divisions, Marine aircraft wings, and Marine force service support groups. The Marine expeditionary force is capable of missions across the range of military operations, including amphibious assault and sustained operations ashore in any environment. It can operate from a sea base, a land base, or both. It may also contain other Service or foreign military forces assigned or attached to the MAGTF. Also called **MEF**. See

also **aviation combat element; combat service support element; command element; ground combat element; Marine air-ground task force; Marine expeditionary force (forward); Marine expeditionary unit; special purpose Marine air-ground task force.** (Proposed for inclusion in the next edition of MCRP 5-12C.)

Marine expeditionary force (forward)—A designated lead echelon of a Marine expeditionary force, task-organized to meet the requirements of a specific situation. A Marine expeditionary force (forward) varies in size and composition, and may be commanded by the Marine expeditionary force commander personally or by another designated commander. It may be tasked with preparing for the subsequent arrival of the rest of the MEF/joint/combined forces, and/or the conduct of other specified tasks, at the discretion of the MEF commander. A Marine expeditionary force (Forward) may also be a stand-alone MAGTF, task-organized for a mission in which a MEF is not required. It may also contain other Service or foreign military forces assigned or attached to the MAGTF. Also called **MEF (forward).** See also **aviation combat element; combat service support element; command element; ground combat element; Marine air-ground task force; Marine expeditionary force; Marine expeditionary unit; Marine expeditionary unit (special operations capable); special purpose Marine air-ground task force.** (Proposed for inclusion in the next edition of MCRP 5-12C.)

Marine expeditionary unit (special operations capable)—The Marine Corps standard, forward-deployed, sea-based expeditionary organization. The MEU(SOC) is a MEU, augmented with selected personnel and equipment, that is trained and equipped with an enhanced capability to conduct amphibious operations and a variety of specialized missions, of limited scope and duration. These missions include specialized demolition, clandestine reconnaissance and surveillance, raids, in-extremis hostage recovery, and enabling operations for follow-on forces. The Marine

expeditionary unit (special operations capable) is not a special operations force but, when directed by the President or Secretary of Defense, the combatant commander, and/or other operational commander, may conduct limited special operations in extremis, when other forces are inappropriate or unavailable. It may also contain other Service or foreign military forces assigned or attached to the MAGTF. Also called **MEU (SOC).** See also **aviation combat element; combat service support element; command element; ground combat element; Marine air-ground task force; Marine expeditionary force; Marine expeditionary force (Forward); Marine expeditionary unit; special purpose Marine air-ground task force.** (Proposed for inclusion in the next edition of MCRP 5-12C.)

offensive air support—Those air operations conducted against enemy installations, facilities, and personnel to directly assist the attainment of MAGTF objectives by the destruction of enemy resources or the isolation of the enemy's military forces. Also called **OAS.** (MCRP 5-12C)

operations security—A process of identifying critical information and subsequently analyzing friendly actions attendant to military operations and other activities to: a. identify those actions that can be observed by adversary intelligence systems; b. determine indicators that hostile intelligence systems might obtain that could be interpreted or pieced together to derive critical information in time to be useful to adversaries; and c. select and execute measures that eliminate or reduce to an acceptable level the vulnerabilities of friendly actions to adversary exploitation. Also called **OPSEC.** (JP 1-02)

preplanned air support—Air support in accordance with a program, planned in advance of operations. (JP 1-02)

raid—An operation, usually small scale, involving a swift penetration of hostile territory to secure information, confuse the enemy, or to destroy installations. It ends with a planned

withdrawal upon completion of the assigned mission. (JP 1-02)

rear area operations center/rear tactical operations center—A command and control facility that serves as an area/subarea commander's planning, coordinating, monitoring, advising, and directing agency for area security operations. (JP 1-02)

rear area security—The measures taken before, during, and/or after an enemy airborne attack, sabotage action, infiltration, guerrilla action, and/or initiation of psychological or propaganda warfare to minimize the effects thereof. (MCRP 5-12C)

rules of engagement—Directives issued by competent military authority which delineate the circumstances and limitations under which United States forces will initiate and/or continue combat engagement with other forces encountered. Also called ROE. (JP 1-02)

special operations—Operations conducted by specially organized, trained, and equipped military and paramilitary forces to achieve military, political, economic, or informational objectives by unconventional military means in hostile, denied, or politically sensitive areas. These operations are conducted across the full range of military operations, independently or in coordination with operations of conventional, nonspecial operations forces. Political-military considerations frequently shape special operations, requiring clandestine, covert, or low visibility techniques and oversight at the national level. Special operations differ from conventional operations in degree of physical and political risk, operational techniques, mode of employment, independence from friendly support, and dependence on detailed operational intelligence and indigenous assets. Also called **SO**. (JP 1-02)

special purpose Marine air-ground task force—A Marine air-ground task force organized, trained and equipped with narrowly focused capabilities. It is designed to accomplish a specific mission, often of limited scope and duration. It may be any size, but normally it is a relatively small force—the size of a Marine expeditionary unit or smaller. It may contain other Service or foreign military forces assigned or attached to the Marine air-ground task force. Also called **SPMAGTF**. See also **aviation combat element; combat service support element; command element; ground combat element; Marine air-ground task force; Marine expeditionary force; Marine expeditionary force (forward); Marine expeditionary unit**. (Proposed for inclusion in the next edition of MCRP 5-12C.)

suppression of enemy air defenses—That activity which neutralizes, destroys, or temporarily degrades surface-based enemy air defenses by destructive and/or disruptive means. Also called **SEAD**. (JP 1-02)

surface-to-air weapon—A surface-launched weapon for use against airborne targets. Future developments in air defense systems may lead to the employment of weapons other than missiles. Examples include rockets, directed-energy weapons, and air defense guns. (JP 1-02)

tactical air command center—The principal US Marine Corps air command and control agency from which air operations and air defense warning functions are directed. It is the senior agency of the US Marine air command and control system which serves as the operational command post of the aviation combat element commander. It provides the facility from which the aviation combat element commander and his battle staff plan, supervise, coordinate, and execute all current and future air operations in support of the Marine air-ground task force. The tactical air

command center can provide integration, coordination, and direction of joint and combined air operations. Also called **Marine TACC**. (JP 1-02)

tactical air control center—The principal air operations installation (ship-based) from which all aircraft and air warning functions of tactical air operations are controlled. Also called **Navy TACC**. (JP 1-02)

tactical air control party—A subordinate operational component of a tactical air control system designed to provide air liaison to land forces and for the control of aircraft. Also called **TACP**. (JP 1-02)

tactical air coordinator (airborne)—An officer who coordinates, from an aircraft, the actions of other aircraft engaged in air support of ground or sea forces. Also called **TAC(A)**. (JP 1-02)

tactical air direction center—An air operations installation under the overall control of the Navy tactical air control center (afloat)/Marine Corps tactical air command center, from which aircraft and air warning service functions of tactical air operations in support of amphibious operations are directed. Also called **TADC**. (JP 1-02)

tactical air operation—An air operation involving the employment of air power in coordination with ground or naval forces to: a. gain and maintain air superiority; b. prevent movement of enemy

forces into and within the objective area and to seek out and destroy these forces and their supporting installations; c. join with ground or naval forces in operations within the objective area, in order to assist directly in attainment of their immediate objective. (JP 1-02)

tactical air operations center—The principal air control agency of the US Marine air command and control system responsible for airspace control and management. It provides real time surveillance, direction, positive control, and navigational assistance for friendly aircraft. It performs real time direction and control of all anti-air warfare operations, to include manned interceptors and surface-to-air weapons. It is subordinate to the tactical air command center. Also called **TAOC**. (JP 1-02)

tactical recovery of aircraft and personnel—A mission performed by an assigned and briefed aircrew for the specific purpose of the recovery of personnel, equipment, and/or aircraft when the tactical situation precludes search and rescue assets from responding and when survivors and their location have been confirmed. Also called **TRAP**. (MCRP 5-12C)

time on station—The time that an aircraft can actually spend performing its assigned mission. It does not include the time transiting to and from the operating site. Also called **TOS**. (MCRP 5-12C)

APPENDIX D

REFERENCES AND RELATED PUBLICATIONS

Joint Publications (Joint Pubs)

| | |
|------|---|
| 0-2 | Unified Action Armed Forces (UNAAF) |
| 1-02 | Department of Defense Dictionary of Military and Associated Terms |
| 3-0 | Doctrine for Joint Operations |
| 3-02 | Joint Doctrine for Amphibious Operations |
| 3-07 | Joint Doctrine for Military Operations Other Than War |
| 3-30 | Command and Control for Joint Air Operations |
| 3-52 | Doctrine for Joint Airspace Control in a Combat Zone |
| 3-54 | Joint Doctrine for Operations Security |
| 3-58 | Joint Doctrine for Military Deception |
| 5-0 | Doctrine for Planning Joint Operations |

Naval Doctrine Publications (NDPs)

| | |
|---|---------------------------|
| 1 | Naval Warfare |
| 5 | Naval Planning |
| 6 | Naval Command and Control |

Naval Warfare Publications (NWP)

| | |
|----------|--|
| 3-09.11M | Supporting Arms in Amphibious Operations |
| 3-02.1 | Ship-to-Shore Movement |

US Army Field Manuals (FMs)

| | |
|--------|---|
| 34-130 | Intelligence Preparation of the Battlefield |
|--------|---|

Marine Corps Orders (MCOs)

| | |
|-----------|--|
| 3120.9B | Policy for Marine Expeditionary Unit (Special Operations Capable) (MEU[SOC]) |
| P3500.16C | Aviation Training and Readiness Manual, Volume 3, Tactical Helicopter |

Marine Corps Doctrinal Publications (MCDPs)

| | |
|-----|---------------------|
| 1 | Warfighting |
| 1-1 | Strategy |
| 1-2 | Campaigning |
| 1-3 | Tactics |
| 2 | Intelligence |
| 5 | Planning |
| 6 | Command and Control |

Marine Corps Warfighting Publications (MCWPs)

| | |
|--------|---|
| 3-2 | Aviation Operations |
| 3-11.4 | Helicopterborne Operations |
| 3-16 | Fire Support Coordination |
| 3-16.1 | Artillery Operations |
| 3-22 | Antiair Warfare |
| 3-22.2 | Suppression of Enemy Air Defenses (SEAD) |
| 3-23 | Offensive Air Support |
| 3-24.1 | Shipboard Helicopter Operating Procedures For Air-Capable Ships |
| 3-25 | Control of Aircraft and Missiles |
| 3-25.3 | Marine Air Command and Control System Handbook |
| 3-25.5 | Direct Air Support Center Handbook |
| 3-31.5 | Ship-to-Shore Movement |
| 3-40.3 | Communications and Information Systems |
| 5-1 | Marine Corps Planning Process |
| 5-11.1 | MAGTF Aviation Planning (Formerly FMFM 5-70) |

Marine Corps Reference Publication (MCRP)

| | |
|---------|---|
| 5-11.1A | MAGTF Aviation Planning Documents (Formerly FMFRP 5-71) |
|---------|---|

Fleet Marine Force Manuals (FMFMs)

| | |
|------|---|
| 4-3 | MAGTF Landing Support Operations |
| 6-21 | Tactical Fundamentals of Helicopterborne Operations |
| 7-22 | Tactical Fundamentals for Aviation in Cold Weather Operations |
| 8-2 | Counterinsurgency Operations |

Miscellaneous

Concept Paper, Forward. . .From the Sea
Concept Paper, Ship-To-Objective Maneuver
Concept Paper, Operational Maneuver From the Sea